DOCUMENT RESUME

ED 301 663 CE 051 397

AUTHOR Lisack, J. P.; Shell, Kevin D.
TITLE Critical Changes Ahead: Demographic, Technological, Socio-Economic with Emphasis on Multi-Culturalism in the Workplace--Opportunities and Challenges. Manpower Report 88-8.
INSTITUTION Purdue Univ., Lafayette, Ind. Office of Manpower Studies.
PUB DATE 16 Nov 88
NOTE 38p.; A presentation for the Purdue University Supervisory Development Program, Division Specific Series. Legibility may be affected by colored paper and occasionally burred print.
PUB TYPE Reports - General (140)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Education; Adult Literacy; Basic Skills; Blacks; Demand Occupations; *Demography; Educational Needs; *Education Work Relationship; *Employment Projections; *Entry Workers; *Futures (of Society); Job Training; Mathematics Instruction; Population Trends; Postsecondary Education; Retraining; Science Instruction; Secondary Education; *Technological Advancement; Vocational Education
IDENTIFIERS *Indiana

ABSTRACT

This report is an overview of the changes occurring in society and the workplace today, with a prediction of how those changes will affect employment in the future in the United States and especially in Indiana. The report is organized in five sections. The first section summarizes the demographic, economic, and social changes that are presently occurring, and the second section focuses on managing the diversity that these changes have brought to the workplace. In the third section, the emphasis is on demographics and education, with discussion of school populations at each level, higher education attendance, the education of blacks, and census data on the effects of higher education. Much of the data is specific to Indiana, although the trends are projected nationwide. The fourth section discusses jobs and qualifications, outlining the problem of mismatch between young workers' skills and the demands of employers. Note is taken of the need for more academic education, especially in science and mathematics. The final section projects the changes and trends discussed in the first four sections into the future, addressing the changing labor force and literacy levels, employment policies, and predictions about the work force of the year 2000. Tables, charts, and illustrations are included. (KC)

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CRITICAL CHANGES AHEAD:

DEMOGRAPHIC, TECHNOLOGICAL, SOCIO-ECONOMIC

WITH EMPHASIS ON
MULTI-CULTURALISM IN THE WORKPLACE —
OPPORTUNITIES AND CHALLENGES.

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A Presentation for the

Purdue University Supervisory Development Program,
Division Specific Series.

16 November 1988

MANPOWER REPORT 88-8

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THE CHANGING DEMOGRAPHIC, ECONOMIC AND SOCIAL SETTINGS

Major changes are occurring -- some documented trends are well under way, and more changes are anticipated: among the significant ones are ---

■ Changing demographics: There is a growing diversity in the population. There will be proportionately fewer young people -- but more older people. There will be a higher number and proportion of ethnic minorities, and growing urban and rural disadvantaged populations made up of all ethnic groups. The per-capita income "gap" will widen between "haves" and "have nots".

■ Advancing technology: e.g., micro-electronics, computers, materials, genetics, biotechnology, energy, manufacturing, programmable controllers, optics, medicine, telecommunications -- to mention a few. Most of these affect products, processes and services. The rate of change continues to accelerate.

■ More intensive global-international relations, inter-dependence and competition will bring about much greater complexities and have significant economic, social and political ramifications. Major job displacements will occur.

■ Changes in Education: The educational levels of Americans in general will continue to rise slowly, but the disparities (gaps) are large between levels of education of White American vs. those "at-risk", i.e., Blacks, Hispanics and Native Americans (as well as urban and rural disadvantaged of all ethnic groups). This will have deleterious effects on our economy and society. There will be a continuation in the higher proportions of at-risk youth who experience lower academic successes and drop out of high school for a variety of reasons. The poor will face even greater obstacles (both academic and financial) in participating successfully in post-secondary vocational training or college-level education programs; this applies to at-risk adults as well as youth. Of more and more importance to every worker is the acquisition of a sound educational foundation and good personal attributes in order to get a good job, and in order to be (re)trained and upgraded as changes occur, with the least cost to employers in terms of time, money and other resources.

■ Changes in the Workforce and Workplace

● Workforce. There will be fewer (total) numbers of working-age youth -- with more minority representation, resulting in keener competition among military recruiters, educational institutions and employers for youth having the "best" qualifications. There is an aging of the many baby-boomers born shortly after WW II, many of whom are greeting their fortieth birthday. Also, many women have jointed the workforce, largely because of three historic forces. First came the 1960s' feminist movement which encouraged housewives to seek fulfillment in a career. Second, economic recessions and inflation in the 1970s necessitated greater reliance on dual incomes. Third, because of high divorce rates and increasing illegitimacy rates in the 1970s and 1980s, an increasing proportion of household are headed and supported by women. This rapid expansion of the labor force is now slowing perceptibly. However, this changing pool of workers has resulted in a growing mismatch between the skills they have or bring to the job and those skills employers need most.

o There will continue to be large numbers of displaced workers who have lost their jobs due to plant closings, automation, new products or processes, new materials and other reasons. Most displaced workers get jobs at lower than previous earnings, or part-time work; but some remain unemployed because of educational and skill levels inadequate for the qualifications needed for emerging, higher-complexity, and changing job requirements, and because they live in places where there are inadequate employment opportunities.

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o On the positive side, there will be growing needs for workers who do possess necessary qualifications pertinent to new or changing (growth) occupations. A sound educational base, good attitude and positive interpersonal skills are becoming more critical to get a job; continuing education and training is becoming a necessity to advance in a career where job security, wages and benefits are usually much better.

o More employers are opting to use contingent or "temporary workers" to meet peak loads. Problems of promotion, pay raises, fringe benefits and unions are avoided. These "just in time workers" (some self-employed) range from file clerks, skilled secretaries and computer specialists to managers and white-collar professionals, particularly in the service sector. The Department of Labor estimates that up to one out of every four jobs is done by a contingent worker.

● Workplace. A number of significant change are happening which affect millions of jobs, such as:

o The number of jobs in manufacturing may continue to decrease slightly but will change significantly due to foreign competition, foreign low-cost labor and to improved productivity (automation, computer integration, quality control, new processes and materials). The loss of manufacturing jobs has been more than offset by an increase in numbers of service jobs. An unknown is the extent and nature of new occupations that will be created in response to new technologies. However, these new occupations tend to require higher levels of education and skill than the old manufacturing assembly and production jobs.

"This is what is loosely known as a 'workplace.'"

o The average wages paid in manufacturing jobs are higher than the average wages in service jobs. For example, in Indiana the March 1988 average weekly wage for the "job-lost" category (mostly in durable-goods manufacturing) was $492.66 whereas the average weekly wage for the "job-gain" category (essentially in non-health and retail trade) were only $225.50 and $174.64, respectively. If this trend toward more lower-paying jobs continues, we can expect to experience a profound reduction in the average standard of living and greater disparity between the haves and the have-nots. Two incomes from service or retail jobs will be required to provide the same life style that one manufacturing job allowed; the proportion of more households with two or more workers continues to grow.

o Entry-level jobs in the workplace will increasingly require persons who have basic academic, analytical, and interpersonal skills. Many jobs are increasing in complexity, and computer applications are expanding. The jobs that are projected to grow the fastest (percentage increase) usually require post-secondary training or education.

o Increasing are pools of skilled workers (e.g., computer related or other specialized occupations) who can be trained and hired out to different employers on a temporary basis in order to meet peak work loads or rapidly changing conditions.

o The evolution of computer technology and expanding applications of many scientific advances are rapidly changing the workplace as well as the nature of many jobs. Such advances increasingly allow better planning, control and operations to be performed on local, national or worldwide scales. Latest technological advances are often ahead of abilities of persons to apply them to their maximum capabilities.

MANAGING DIVERSITY WITHIN AN INCREASINGLY INTER-DEPENDENT SOCIETY

One of the more significant changes in the workplace over the past twenty years has been the emergence of a workforce with more diverse characteristics. In essence, working groups are becoming increasingly more pluralistic: members of diverse ethnic, racial, religious, age or social groups generally maintain participation in and development of their traditional culture or special interests within the confines of common work settings. As time passes, there will be even greater diversity and variation from traditional experiences.

The pluralism evident in the workplace is also reflected in the educational environment. In fact, these waves of growing diversity ripple through educational institutions at all levels (elementary, secondary and post-secondary) before they wash ashore in the workplace.

Administrators, managers, supervisors and educators who are dependent upon racially, sexually, culturally or socially diverse populations will be increasingly required to identify, understand and respond to the differences and issues implicit in diversity and to develop understanding, policies and procedures for productively working with this diversity.

In addition, because of increasing worldwide marketing and competition, U.S. management and workers need at least a greater awareness of, understanding of, and respect for foreign cultures, values, and economic principles. Some occupations require good working communication skills with foreign consumers and companies. Moreover, as foreign companies continue to increase production within the U.S. itself, greater awareness, understanding and respect will be increasingly required of U.S. citizens in general.

SEXUAL DIVERSITY

In recent years, the majority of beginning workers have been women, and this trend is expected to continue. This upsurge of women entering the workforce is largely because of three historic forces. First came the 1960s' feminist movement which encouraged housewives to seek fulfillment in a career. Second, economic recessions and inflation in the 1970s necessitated greater reliance on dual incomes. Third, because of high divorce rates and increasing illegitimacy rates in the 1970s and 1980s, an increasing proportion of households are headed and supported by women.

Although progress is being made, women continue to enter lower-pay occupations, to remain at lower managerial or supervisory levels, and thus to earn lower average incomes than men, at a time when an increasing number of women are being responsible for solely supporting a family.

SKILL-LEVEL DIVERSITY

An increasing proportion of working-age youth are at-risk of not being adequately prepared for work or life itself. Although a higher proportion of Black, Hispanic, and Native American are at risk, the majority of at-risk youth are still among the White population. These at-risk young people tend to come from socio-economically disadvantaged families and tend to drop out of high school or,

if they remain in school, tend to be less adequately prepared for life and work than other graduates. As a result, they are less likely to participate in the workforce and to get and keep employment if they do enter the workforce. In addition, this at-risk group tends to encounter greater social and health problems, such as greater involvement in crime and higher incidence of addiction problems. Without special help early, these youth will lack basic academic, interpersonal and employability skills -- especially the ability and willingness to learn and adapt to changes.

Another group at increasing risk consists of those adults with lower academic and technical skills (many of whom may not have finished high school) who found it relatively easy to obtain primarily manual or physical jobs which may not have depended greatly upon such skills. A large number of workers (15-20%) are basically **illiterate**; that is, they are unable to adequately read or write in the English language, perform numerical calculations or reason out problems effectively. Another large number (10-20%) are or will become **functionally illiterate**; that is, they possess basic literacy in general but are or will become unable to function at levels high enough to perform changing job tasks. Serious problems of illiteracy include economic impacts (reduced productivity due to low job skills, high unemployment, and greater time and expense of (re)training), societal or political problems, and anguishing personal experiences and feelings.

Literacy levels and technical skills of currently working adults and citizens are becoming increasingly important because of

- technological advances occurring within the workplace and marketplace,
- new products or processes and new materials,
- plant closings and workforce reductions, and
- the need to stay competitive in worldwide markets.

Consequently, many jobs are increasing in complexity, especially with computer applications. Literacy and technical requirements will continue to increase, shortening the "life-cycle" of jobs and necessitating adults to either learn new things regularly just to maintain job levels (not to mention advancing in a career) or suffer displacement from their jobs and replacement by adults who do possess the necessary skills.

Displaced workers must then seek retraining or upgrade training or resign themselves to lower-paying full- or part-time jobs (particularly in small service or retail industries), if they can find employment at all.

RACIAL/ETHNIC DIVERSITY

Black Americans comprise the **largest** U.S. ethnic-minority group and are increasing in numbers faster than Whites. The **fastest-growing** population groups are Hispanics and Asian Americans. However, the **most ignored** ethnic-minorities are probably the Native Americans. These four groups together comprise an increasing proportion of the potential new workforce but differ markedly in their characteristics, including basic academic skills, technical skills, and social or cultural values.

Blacks are more likely than any other racial or ethnic group to come from and to continue single-parent families, with their often resulting health, educational and other socio-economic difficulties. As a result, they are 50 percent more likely than Whites to drop out of school, and even those who do complete high school are in general less prepared academically for higher education or for work. They are less likely to pursue higher education, and those who do pursue it

are less likely to pursue higher-paying technical careers. Blacks are more likely to "participate" in the labor force but are also more likely to experience unemployment and lower average incomes.

Hispanics tend to come from large families and lower socio-economic backgrounds and have the highest birth rates of all racial or ethnic groups but also tend to have rather strong family bonds, although not as strong as those of Whites or Asian Americans. Many within the rapidly increasing Hispanic population are immigrants from poor, underprivileged countries, lacking even basic educational levels in their native language, besides English. They are twice as likely to leave school, more because of moving around than to dropping out entirely. They have high labor participation rates but are less likely to pursue high-paying careers and more likely to experience higher unemployment than Whites (but lower than Blacks).

Native Americans, the smallest racial groups and thus often overlooked, tend to have characteristics similar to those of Blacks and Hispanics. Their birth rates tend to be high. They tend to be in female-headed households more than any other racial group, except for Blacks. Their educational attainment and performance tend to be low, including low high-school graduation rates. Their average incomes tend to be among the lowest, and their unemployment rates are among the highest (sometimes even higher than those of Blacks).

Asian Americans, the second fastest-growing ethnic-minority group, have the lowest fertility rates of the racial groups. Their rapid increase is therefore due to intense immigration. This immigration, however, is from a variety of countries and cultural backgrounds. Asian Americans tend to have the strongest family bonds and give top priority to a good education. They have the highest high-school graduation rates, the highest college-attendance rates, the highest academic performance, the highest average incomes, and the lowest unemployment rates.

AGE DIVERSITY

The population and workforce in general are aging. The majority of workers will be part of the baby-boom generation. There will be fewer working-age youth, resulting in keener competition among military recruiters, educational institutions, and employers for youth having the best qualifications. However, an increasing proportion of the diminishing number of working-age youth will come from at-risk socio-economic groups. An increasing proportion of new working-age youth will lack adequate basic academic, technical, or interpersonal skills necessary for high work productivity. This will require special efforts by employers, educators, and government agencies to overcome barriers to at-risk youth and provide opportunities for them to attain their potential in order to meet the needs of society in general.

With the aging of the workforce, an increasing proportion of the population is falling in the retirement-age group. At the same time that the number of working-age youth is diminishing, society is losing the experience and positive work attitudes of an increasing number of key workers to retirement -- in many cases to early retirement. There is, however, an increasing trend for retired persons to return to the workforce on a part-time basis to add greater fulfillment to their lives and to supplement their social-security income. They are, in addition, contributing in a special way to their work environment in serving as positive examples for young employees.

WOMEN MANAGING MEN*

(Highlights)

... No matter the gender or managerial style of the minute, the ability to manage subordinates effectively, male or female, is a skill critical in the climb to the top. ... So where does the discomfort between males and their female supervisors come from? The real problem isn't how women manage men, but how we **perceive** they manage us, [says Ellen Van Velsor, behavioral scientist at the Center for Creative Leadership.]

... [M]anagement consultant and author Mary Jane Parsons [says,] "It's silly to say that in the workplace, a man's gut reaction toward a woman will be no different than toward another man. ... There's a difference between the sexes that is emphasized outside the office. This doesn't automatically evaporate because we're all wearing business suits."

... But what did women currently managing men, and other men who'd been managed by women, have to say? "I don't think many men are against women bosses as women, but they are concerned about the overall effect on their job," said Sally, an assistant vice president for a large insurance company. "For instance, they might wonder whether a female boss will carry as much clout with upper management."

... [According to Van Velsor,] "A woman manager has to be more careful of behavior that is perceived as either too masculine or too feminine. There is a narrower range of behaviors men will accept from women than from other men." ... The poor woman manager. Every day she must live with a contradictory set of expectation; having to establish command without being too "macho." The notion that female bosses must be ruthless dictators to be respected by men is out, but some women still have to struggle not to fall into the "tough trap."...

Neither can a woman tiptoe around male subordinates hoping to avoid confrontation, according to Lois Wyse, ... president of her own advertising firm.

... Some long-held perceptions about how women manage also can work to their advantage. ... [M]any men and women subordinates think females take a greater personal interest in their staffs.

... [T]he next logical question was whether women **should** manage men any differently than they manage women. In most cases, the experts told me, men and women subordinates should be treated the same: Consistency and fairness are always the best policies.

But some differences are bound to crop up. One tricky area is non-business communications, the kind of talk unrelated to the job that builds camaraderie and team spirit. ... Barbara, an executive at a major bank, [recounts,] "I try to find at least one common personal experience with every person on my staff,"....

At some point, most female managers will have to deal with the dreaded male subordinate who, for performance, attitude, or other reasons, needs a reprimand. ... Male chauvinism problems often can be defused with competence and confidence, the experts tell me....

In the long run, the best way to manage men is also the best way to manage women: by good example. "I don't acknowledge men versus women so much as the individual personalities and strengths of each person on my staff," Barbara said: "You build support by being fair, receptive, and encouraging a participative environment. That's really true for managing men and women."...

Their biggest problem, many female managers say, is that women need to do all of these things better than a man to get the same amount of respect. ... Sally agreed that women managers are under the microscope more than the male peers, but the pressure can create opportunities as well. "You definitely have to be better," she concluded. "But with the attention, you also get more of a chance to shine."

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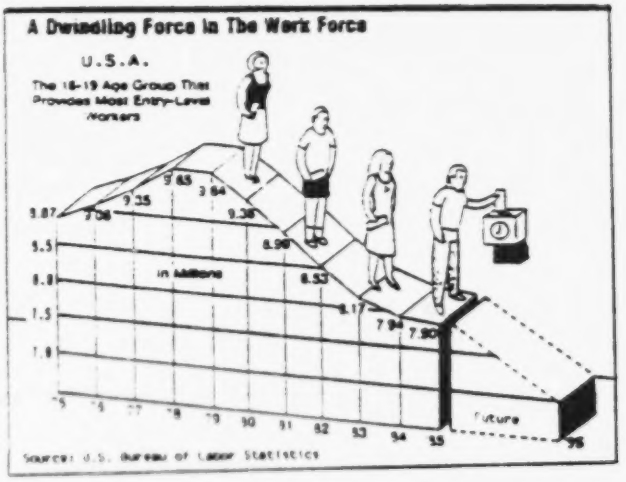
* John Pugsley, "When Women Manage Men." Business Week Careers, June 1988, Vol. 6, (No. 4), pp. 6-8.

MANAGING DIVERSITY IN THE WORKFORCE *

Increasing cultural diversity is a new reality in the American work force, yet few employers or managers are prepared to face it. The labor pool is not only changing, it is shrinking.



For the first time in U.S. history, White males are a minority -- only 46 percent. Within a few years, 75 percent of those entering the workforce will be Minorities or women. Organizations that want the most productive employees will have to put aside old definitions of "corporate fit" and employ people of different colors and cultures. They will have to compete for women, Minorities and others who are different from the norm in age, appearance, physical ability and lifestyle. They will also have to develop and retain them.

Erroneous Assumptions. Most employers -- as well as their managers -- are not prepared to deal with this rapidly emerging diversity in the workforce. Many managers are "culturally deprived", having grown up with little contact with other cultures and having experienced a college education which did not cover multicultural situations. Most traditional models of human behavior and management methods are based on implicit assumptions of a homogeneous White male workforce. The most widely taught theories of motivation mirror the White male's own experience and attitudes. Some of these methods are actually counterproductive in dealing with women or ethnic minorities.

Managing Diversity. Some organizations are moving aggressively to meet the challenge. Positions are created, such as "director of valuing differences," "director of workforce diversity," "director of multicultural planning and design," etc. Others offer management courses dealing with race and gender, establish special committees to select high-potential women and Minorities for key positions, establish networks and support groups to encourage personal and professional growth, and use business resource groups to address issues pertaining to women and Minorities. "The company that gets out in front of managing diversity will have a competitive edge."

Productivity may actually decline unless diversity is deliberately managed and managed well. People tend to cluster with others like themselves, with whom they can be comfortable -- but who also tend to confirm their own stereotypes. Prejudice and cultural misunderstandings cause conflict, bad decisions and poor results. **Management of diversity is needed at all levels.**

Beyond Equality. Managing diversity means more than providing equal employment opportunities, which primarily confronts racism and prejudice. Managing diversity requires ascertaining the diversities, placing value upon the differences, and taking advantage of the benefits these differences can contribute. Ignoring differences is as bad as emphasizing them, or treating them as deficits, or treating everyone in a group as identical. Fair treatment is more important than equal treatment. A good manager knows that individuals react differently for a variety of reasons. For example, many American Indians do not want to be singled out and praised in front of

* Highlights from "Learning to Manage a Multicultural Work Force" by Lennie Copeland. In Training, May 1988, pp.49-51, 55-56.

peers ... a friendly pat on the arm or back may offend an Asian (a male manager so treating a female could have other problems on his hands).

What Every manager Needs to Know. Therefore, what then do managers need to learn in order to manage diversity or what barriers must be overcome? Four issues must be addressed: Stereotypes and associated assumptions, unwritten rules and double standards for success, the exclusivity of the "White male club" with its associated access to important information and relationships, and actual cultural differences.

- Stereotypes with their associated assumptions are bad because they are so powerfully effective in creating over-generalizations of people in the stereotyped group and in over-simplifying behavioral relationships with the people. Managing diversity requires managers to learn new ways to recognize talent and to lay aside some assumptions and look beyond style to results.

- Unwritten Rules are often unknown to women and Minorities. Each organization has its own culture, which reflects attitudes about what is important, how the organization does its work, how employees are expected to behave, and how they are to be rewarded. These values have traditionally tended to be male, White and western European -- not because they are necessarily better than others but because they are the attitudes of the leaders.

  Sometimes these rules are explicit, but, usually, at least some rules are implicit and ambiguous, often contradicting written policy. Often, the stereotypic assumptions concerning a particular group influence use, interpretation or fulfillment of any unwritten rules. Managers therefore need to identify and evaluate their organization's culture, unwritten rules and double standards. Valuing diversity may mean changing rules to accommodate differences in style and in perspective or, at least, communicating the (unwritten) rules.

- Membership. The exclusivity of the "White male club" is important because being a member of the work "club" or team is just as important as hard work and competence. People in the mainstream tend to fail to include those who are different from themselves and thereby exclude them from important information and relationships. For women and Minorities, membership is less "automatic" than for White males, and promotional opportunities are less readily available for establishing a good work record and for reducing the greater risk others perceive to be associated with them.

- Cultural Differences affect the values people bring to the workplace. Different people feel differently about their roles in an organization, how they can make a contribution, what they would like to receive as a member of the organization, and how they want to be recognized for their efforts. What motivates one worker may inhibit another. This includes accurately identifying and evaluating one's own culture. Adapting within diversity must be a two-way street shared by both all workers and managers.

☆***Four Essentials in Managing a Diverse Workforce:***

1. Periodically stop and ask, "What's going on here? What assumptions am I making?"
2. Make sure all your employees are invited into the club.
3. Share the unwritten rules and change them to nurture diversity.
4. Be sensitive to individual differences: appreciate diversity.

STATE OF INDIANA POPULATION AGE STRUCTURE: 1985-2000

TOTAL STATE OF INDIANA POPULATION

AGE GROUPS	YEAR 1985	YEAR 2000	CHANGE IN POPULATION Number	CHANGE IN POPULATION Percent
0- 4	414,620	362,880	-51,740	-12.48%
5- 9	405,660	375,200	-30,460	- 7.51
10-14	422,030	384,570	-37,460	- 8.88
15-19	465,460	422,770	-42,690	- 9.17
20-24	518,950	424,870	-94,080	-18.13
25-34	909,680	819,030	-90,650	- 9.97
35-49	990,420	1,303,580	+313,160	+31.62
50-64	761,180	874,300	+113,120	+14.86
65+	627,890	698,580	+70,690	+11.26
TOTALS	5,515,890	5,665,780	+149,890	+ 2.72%

Indiana is an aging state that is projected to grow very slowly, adding about 150,000 people (+2.7%) by the year 2000. The largest increase is expected in the 35-49 age group, reflecting the middle-aging of the post-WWII baby boom. All younger age groups are expected to decrease. This will have significant impact on education, the workforce, and the support of the older age groups.

Median Age:
1985 30.7 years 2000 33.5 years

WHITE POPULATION

AGE GROUPS	YEAR 1985	YEAR 2000	CHANGE IN POPULATION Number	CHANGE IN POPULATION Percent
0- 4	364,720	316,310	-48,410	-13.27%
5- 9	356,810	327,830	-28,980	- 8.12
10-14	373,810	336,490	-37,320	- 9.98
15-19	419,910	374,970	-44,940	-10.70
20-24	466,690	378,480	-88,210	-18.90
25-34	817,970	731,750	-86,220	-10.54
35-49	912,560	1,170,730	+258,170	+28.29
50-64	708,140	809,750	+101,610	+14.35
65+	592,630	655,050	+62,420	+10.53
TOTALS	5,013,240	5,101,360	+88,120	+ 1.76%

The White population is projected to grow less than 2%, with significant decreases in all of the younger age groups and a large gain in the 35-49 age group (WWII baby boomers). The continuing decline in the numbers of white youth will be experienced throughout the foreseeable future.

BLACK POPULATION

AGE GROUPS	YEAR 1985	YEAR 2000	CHANGE IN POPULATION Number	CHANGE IN POPULATION Percent
0- 4	41,230	37,850	- 3,380	- 8.20%
5- 9	40,400	39,100	- 1,300	- 3.22
10-14	40,590	39,970	- 620	- 1.53
15-19	39,270	39,370	+ 100	+ .26
20-24	45,010	38,230	- 6,780	-15.06
25-34	75,680	74,090	- 1,590	- 2.10
35-49	64,160	111,140	+46,980	+73.22
50-64	46,750	52,910	+ 6,160	+13.18
65+	32,640	38,720	+ 6,080	+18.63
TOTALS	425,730	471,380	+45,650	+10.72%

The Black population will increase by 45,650 (+10.7%). The proportional decline in the youth groups will be far less than the decline of White youth; the most significant increase is projected for the 35-49 age group.

OTHER NON-WHITE POPULATION

AGE GROUPS	YEAR 1985	YEAR 2000	CHANGE IN POPULATION Number	CHANGE IN POPULATION Percent
0- 4	8,670	8,720	+ 50	+ .58%
5- 9	8,450	8,270	- 180	- 2.13
10-14	7,630	8,110	+ 480	+ 6.29
15-19	6,280	8,430	+ 2,150	+34.24
20-24	7,250	8,160	+ 910	+12.55
25-34	16,030	13,190	- 2,840	-17.72
35-49	13,700	21,710	+ 8,010	+58.47
50-64	6,290	11,640	+ 5,350	+85.06
65+	2,620	4,810	+ 2,190	+83.59
TOTALS	76,920	93,040	+16,120	+20.96%

Other Non-Whites (includes Asians, Non-White Hispanics, Native Americans) will be the fastest growing category, increasing 16,120 (+21%) by the year 2000. The increases in the younger age groups portend fast population increases. The large proportion of the older groups is also noteworthy.

Source: Indiana Business Research Center, School of Business, Indiana University, Bloomington, Ind.; February 1988. Indiana County Population Projections, By Race, 1985-2020.

* See Attachment I for more detailed information on sex and age.

PURDUE UNIVERSITY - SCHOOL OF TECHNOLOGY
OFFICE OF MANPOWER STUDIES

W. J. F. Lisack,
Director Emeritus

MANPOWER TID-BIT 88-4 22 JULY 1988

Dr. Kevin O. Oneil,
Research Associate

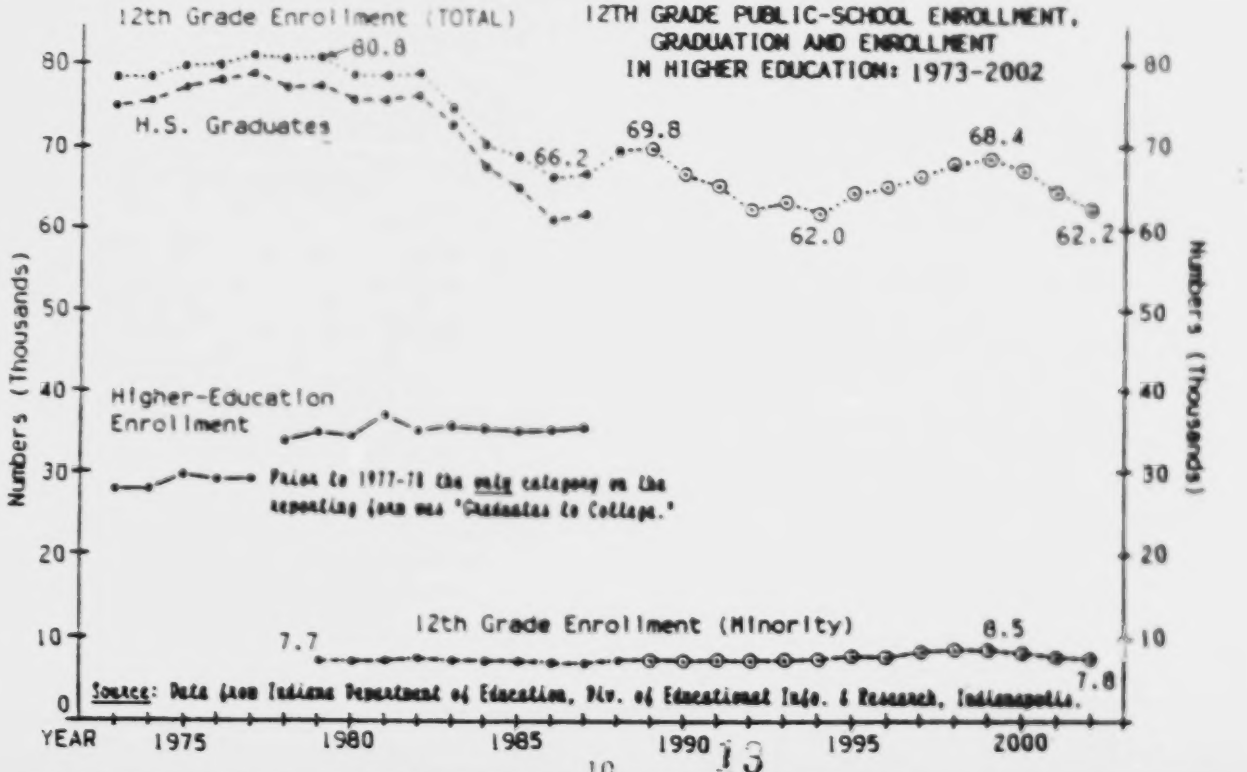
INDIANA PUBLIC-SCHOOL TRENDS IN 12TH-GRADE ENROLLMENT AND H.S. GRADUATION

The number of graduates from Indiana public high-schools has declined markedly from a high of 78,600 in 1977 to a recent low of 61,200 in 1986, paralleling 12th-grade enrollment. For the next 15 years at least, 12th-grade enrollment (paralleled by graduation counts) is expected to cycle between highs of about 69,000 and lows of about 63,000. The declining high-school enrollment and graduation counts have put and will continue to put increasing competitive pressure on businesses or industry, on higher education, and on the military to attract sufficient numbers of qualified young adults. Increasing this competitive pressure is the fact that, while enrollment and graduates decreased between 1979 and 1986, the number of graduates enrolling in higher education increased slightly or remained stable (see Figure below: numbers are plotted by graduation year). [It is very significant that an increasing proportion of the decreasing enrollment and graduates has been and will continue to be Minorities, who have tended in the past to be less-well educated.]

TABLE 1
INDIANA TRENDS IN PUBLIC-SCHOOL 12TH-GRADE ENROLLMENT, HIGH-SCHOOL GRADUATES, AND INITIAL ENROLLMENT IN HIGHER EDUCATION

School Year	12th Grade Fall Enrollmt	High School Grads[a]	Graduates Enrolled in Higher Educ.[b]	School Year	12th Grade Fall Enrollmt	High School Grads[a]	Graduates Enrolled in Higher Educ.[b]	Projected 12th-Grade Enrollment: School Year	Number	School Year	Number
1972-73	78,258	74,907	27,684	1980-81	78,386	75,557	36,928	1988-89	69,799	1996-97	66,163
1973-74	78,389	75,666	27,718	1981-82	78,754	76,032	35,098	1989-90	66,789	1997-98	67,938
1974-75	79,710	77,230	29,508	1982-83	74,377	72,560	35,615	1990-91	65,189	1998-99	68,374
1975-76	79,955	78,011	28,809	1983-84	70,246	67,445	35,345	1991-92	62,223	1999-00	67,203
1976-77	81,026	78,636	29,069	1984-85	68,646	64,904	35,076	1992-93	63,418	2000-01	64,362
1977-78*	80,405	77,134	33,834	1985-86	66,223	61,201	35,351	1993-94	61,953	2001-02	62,169
1978-79	80,814	77,418	34,765	1986-87	66,699	61,817	35,465	1994-95	64,173		
1979-80	78,435	75,639	34,250	1987-88	69,746	NA	NA	1995-96	65,206		

[a] Regular + (mid-term) Special Graduates, excl. GEDT and Special Educ. Graduates. [b] Excl. military enlistment.
* Prior to 1977-78 the only category on the reporting form was "Graduates to College."
Source: Indiana Department of Education, Division of Educational Information & Research, Indianapolis.



Source: Data from Indiana Department of Education, Div. of Educational Info. & Research, Indianapolis.

PURDUE UNIVERSITY - SCHOOL OF TECHNOLOGY
OFFICE OF MANPOWER STUDIES

MANPOWER INFORMATION

TID-BIT 88-2

27 JUNE 1988
(Updated 10/31/88)

Dr. J. P. Lisack,
Director

Dr. Kevin D. Shell,
Research Associate

HIGHER-EDUCATION ATTENDANCE RATES OF INDIANA H.S. GRADUATES: 1982-87

The numbers of Indiana high-school graduates declined 18.7 percent (14,215 students) between 1981-82 and 1986-87 (from 76,032 to 61,817). This decline is projected to continue, falling below 50,000 by the year 2000. Of special concern is the observation that during this period, the 12th-grade graduation rate has declined from 96.5 percent to 92.7 percent (see Table 1).

However, since 1981-82 there has been an increase in the percentage of high-school graduates attending higher education institutions, from 46 percent to 57 percent, so that the numbers who have enrolled have remained relatively constant at about 35,000. This increase occurred for all groups except for nursing schools and vocational/technical trade schools.

TABLE 1

INDIANA HIGH-SCHOOL GRADUATION RATES, INITIAL HIGHER-EDUCATION ENROLLMENT, AND MILITARY ENLISTMENT PLANS: 1981-82 TO 1986-87

School Year	12th Grade Fall Enrollmt	High School Graduates[a] Number	High School Graduates[a] % of Enr.	High School Graduates Initially Enrolling in Higher Education[b] Total Number	Total % of Grad.	4-Year Institutions Number	4-Year Institutions %	Voc'l/Tech Trade Sch. No.	Voc'l/Tech Trade Sch. %	Business School No.	Business School %	Nursing School No.	Nursing School %	Other Institut. No.	Other Institut. %	Military Enlistmnt No.	Military Enlistmnt %
1981-82	78,754	76,032	96.5	35,098	46.2%	24,571	32.3%	5,089	6.7%	1,735	2.3%	1,006	1.3%	2,697	3.6%	3,148	4.1%
1982-83	74,377	72,560	97.6	35,615	49.1%	24,758	34.1%	5,337	7.4%	1,735	2.4%	1,004	1.4%	2,781	3.8%	3,971	5.5%
1983-84	70,246	67,445	96.0	35,345	52.4%	24,063	35.7%	5,271	7.8%	1,787	2.7%	944	1.4%	3,280	4.9%	3,641	5.4%
1984-85	68,646	64,984	94.5	35,076	54.0%	24,258	37.4%	5,070	7.8%	1,926	3.0%	842	1.3%	2,980	4.6%	3,576	5.5%
1985-86	66,223	61,201	92.4	35,351	57.8%	24,975	40.8%	4,811	7.9%	1,877	3.1%	685	1.1%	3,003	4.9%	3,534	5.8%
1986-87	66,699	61,817	92.7	35,465	57.4%	25,406	41.1%	4,669	7.6%	2,008	3.2%	585	.9%	2,797	4.5%	3,471	5.6%

[a] Regular + (mid-term) Special Graduates, excluding GED and Special Education Graduates.
[b] Excluding military enlistment.
Source: Indiana Dept. of Education, Division of Educational Information & Research, Indianapolis. (EIR-1 Reports)

Indiana seems to have closed the gap in higher-education attendance rates with respect to the U.S. in general. Although estimation procedures differ between Indiana and the U.S. (and are thus not directly appropriate for comparisons), they are each consistent within themselves. Between (graduation) years 1982 and 1986, Indiana rates increased from 46.2 percent to 57.8 percent (a gain of 11.6%). U.S. rates increased by only 4.9 percent (from 50.7% to 55.6%).

TABLE 2

U.S. HIGHER EDUCATION ENROLLMENT ESTIMATES FOR 18 AND 19 YEAR OLDS*: 1982-1985

(number in thousands)

Year	Graduates	Enrollment in Higher Education Number	Enrollment in Higher Education Percent
1982	5,779	2,929	50.7%
1983	5,688	2,940	51.7%
1984	5,442	2,867	52.7%
1985	5,364	2,907	54.2%
1986	5,293	2,942	55.6%

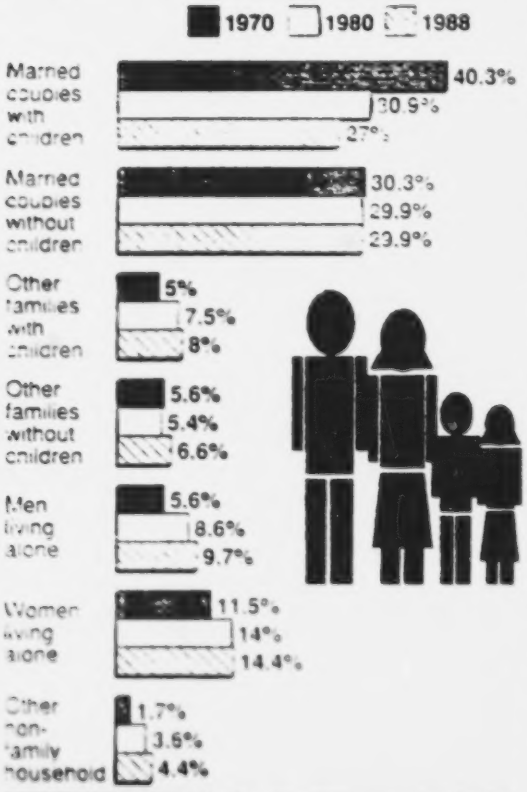
* National estimates based on sample survey of 18 & 19 Year Olds, i.e., two-year groups.
Source: U.S. Bureau of the Census, Current Population Reports (Series P-20, Nos. 392, 394, 404, 409, 429). "School Enrollment - Social and Economic Characteristics of Students," U.S. Government Printing Office, Washington, D.C. 1978-1988.

USA TODAY, TUES., SEPTEMBER 20, 1988, P.5A.

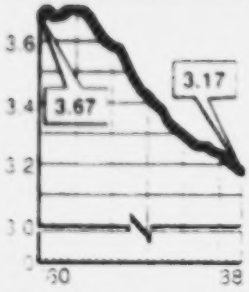
Traditional families are on the decline

A Census Bureau report out Monday shows a marked decline in the percentage of traditional families — married couples with children — since 1970. The smaller family size in some cart is due to both men and women marrying later.

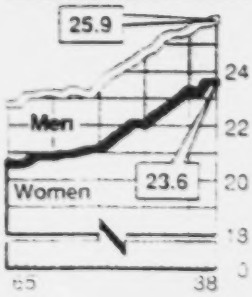
Household composition



Average family size



Median age at first marriage



Source: Census Bureau

USA TODAY, THRS., SEPTEMBER 22, 1988, P.5A.

FROM USA TODAY'S NATIONAL NEWS NETWORK

SPOTLIGHT: EDUCATION

Blacks close gap in education levels

Educational attainment in the USA hit a record high last year, the Census Bureau reports. And the gap between whites and blacks continues to narrow.

Most are high school grads

More males than females go to college, and the education level is highest in the West

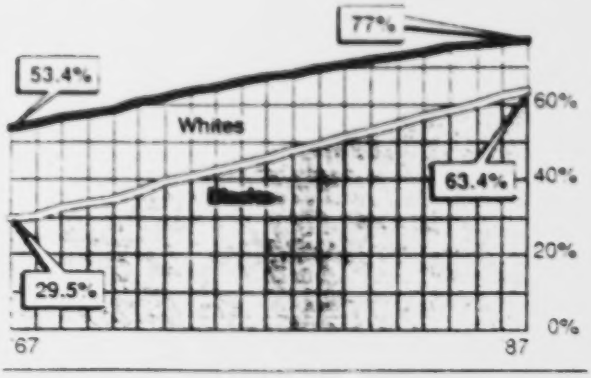
Sex	Persons over 25	High school grad	College grad
Male	70,677,000	76.0%	23.6%
Female	78,467,000	75.3%	16.5%
Overall	149,144,000	75.6%	19.9%

Racial/Ethnic	Persons over 25	High school grad	College grad
White	129,170,000	77.0%	20.5%
Black	15,580,000	63.4%	10.7%
Hispanic	9,449,000	50.9%	8.6%
Other	4,394,000	78.4%	33.4%

Region	Persons over 25	High school grad	College grad
Northeast	32,030,000	76.5%	22.2%
Midwest	36,322,000	77.4%	17.6%
South	50,848,000	70.8%	18.3%
West	29,943,000	80.6%	22.8%

How white-black gap is narrowing

Percentage of high school graduates of all people 25 years or older



HERE THEY COME, READY OR NOT
(SELECTED HIGHLIGHTS)*

Demography's Awesome Challenge for Schools

... [A] markedly different generation of Americans is developing. It will be smaller, and it will be more racially and ethnically diverse than any previous generation in American history....

Next September, more than 3.6 million children will begin their formal schooling in the United States.

	# of Children
▶ 1 out of 4 of them will be from families who live in poverty.	900,000
▶ 14 percent will be the children of teenage mothers.	504,000
▶ 15 percent will be physically or mentally handicapped.	540,000
▶ As many as 15 percent will be immigrants who speak a language other than English.	540,000
▶ 14 percent will be children of unmarried parents.	504,000
▶ 40 percent will live in a broken home before they reach 18.	1,440,000
▶ 10 percent will have poorly educated, even illiterate, parents.	360,000
▶ Between one quarter and one third will be latchkey children with no one to greet them when they come home from school.	1,050,000
▶ And a quarter or more of them will not finish school.	900,000

... That many will bring with them baggage of familial, racial, ethnic, and socioeconomic stress is well known to educators. What is less well understood is that if current trends persist, the proportion of children "at risk" for school failure for these reasons will grow with each passing year for the foreseeable future.

... If demographic trends and projections prove reasonably accurate, these children will face awesome challenges as society seeks to replace the skills of the retiring Baby Boomers. And, if our past experience in dealing with the most needy children is any guide, they will be ill-equipped to meet those challenges.

If the United States is "a nation at risk," as the National Commission on Excellence in Education said in 1983, the "risk" may be largely concentrated in this growing segment of educationally disadvantaged children. They will compose the workforce that will compete in an increasingly technological marketplace. And they will be looked to for the economic productivity to sustain a burgeoning support system for the elderly.

Yet, as reform seeks "excellence" through tightened standards that often exclude them, these children appear, more than ever, to be virtually doomed to lifelong membership in a permanent underclass.

... In a very real sense, an underdeveloped country of some 40 million people has grown in our midst. The majority of its inhabitants are poor, nonwhite, uneducated if not illiterate, unemployed and often unemployable, and largely dependent on government for their survival.

But there is also a growing recognition that the high toll of poverty is not limited to the personal tragedy of millions of individual Americans. Recent studies and reports have documented the enormous cost to society of poverty's progeny: illiteracy, unemployment, teenage pregnancy, violence, and crime.

And the eroding power of the United States in the world marketplace and the declining number of young people in the society have led to a growing awareness that the United States can no longer afford to waste a sixth or more of its human resources. If the nation is to prosper and be secure, business, the military, and academe must have an expanding supply of well-educated young people.

Translation: The schools must do a better job, must find ways to meet the demand.

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* Special Report in Education Week, May 14, 1986, Vol. V No. (34), pp. 13-37.

RECONNECTING YOUTH: THE NEXT STAGE OF REFORM

(HIGHLIGHTS)*

FOREWORD

The success of school reform across the nation has caused many of us to focus on a new set of problems. We recognize that school reforms cannot help young people who are not in school, and that more rigorous curricula might discourage some students and cause them to drop out of school. We now must move to meet the needs of those who, despite or because of school reform, are at greater risk of being lost to society as productive individuals.

We also must recognize our responsibility to teach students the virtues of civic responsibility that are essential to our survival as a democracy. School reform has not dealt with this issue, and perhaps cannot. But either within the classroom or beyond it, we must find ways to teach the next generations the civic virtues that have sustained American democracy for two centuries....

THE PROBLEM

The problem, simply stated, is this: a growing proportion of our young people are not making successful transitions to productive adult lives. They are paying a heavy price. We, as a society, are paying a heavy price. In the years ahead, the costs are going to get higher.

... Within that shrinking labor pool is a growing pool of "at-risk" young men and women: people in their teens and early twenties who *could* become productive citizens but most likely will not unless something out of the ordinary happens. They have the intelligence to succeed, but they lack important skills, family support, discipline and the motivation to make it. An unconscionably disproportionate number of them are poor, Black and Hispanic youth.

... Increasingly, the private sector will find itself teaching them remedial reading, writing and mathematics....

Our choices are clear. We can do nothing to reduce the numbers of youth disconnecting from school, work and the values and benefits they confer....

It would be wiser, and far less costly, to act now. A number of factors suggest that the time is ripe:

- Successful public, private and collaborative programs for turning those young people around exist....
- Education reform is well under way in every state. This momentum for change can be used to move reform into a more comprehensive phase in which the problems of at-risk youth can be more directly addressed.
- Business and industry are restructuring in response to a profound transformation in the world economy. That "how-to" can be shared with the schools and brought to bear on youth problems.
- Interest in public service for youth is high and growing. State, local and national service opportunities hold great potential for harnessing the energies of young people, developing their confidence and skills, and building bridges to their further education and steady employment.

Who Is At Risk?

At-risk youth are young people who face uncertain futures as workers and citizens. At stake is whether they will move into productive adult lives or fall into patterns of chronic failure that deepen their alienation and dependency upon the welfare system.

Three categories of youth are of major concern:

- **The alienated.** These young people are uninterested in or dissatisfied with the values represented by school and work. ... [M]ost alienated students come from the middle classes. Nor is alienation an urban problem; alienated students are everywhere.
- **The disadvantaged and alienated.** These young people ... have, in addition, problems associated with being economically disadvantaged. A disproportionate share of these young people are minorities. ... Most of them lack basic social and academic skills. Most lack family support, useful networks and self-esteem. All could make strong contributions to their communities and lead productive adult lives if they got the right help at the right time.
- **The disadvantaged.** These young people have family support and motivation to succeed, but they suffer from various effects of economic deprivation and racial discrimination.

... It is not unreasonable, ... to believe that all three of the above groups constitute 10% to 15% of the 16- to 19-year-old group, nationally. In major cities, it is not unreasonable to estimate that half the high school population is at risk. We are talking about, by conservative estimate, 1,250,000 White, 750,000 Black and 375,000 Hispanic 16- to 19-year-olds

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* Business Advisory Commission, Reconnecting Youth: The Next Stage of Reform. Education Commission of the States, Denver, CO., October 1985.

Extracted and duplicated by the Office of Manpower Studies, Purdue University, West Lafayette, Indiana 47907.

at risk. Addressing this issue ... is an urgent task central to the country's further economic and social development....

This is a report from members of the business community to members of the education and state policy communities. Its primary message is that we have a common problem, we must address it together and we must address it now.

Disconnecting From School

About 700,000 students dropped out of school last year and another 300,000 were chronic truants....

Rates are much higher for minorities and the poor....

The problem is not just a minority problem or an urban problem; it is widespread. ... Even if the rates for all groups were to stabilize, the situation would be worse than it used to be: our standards for schools and students are getting higher. The bottom rung of the "ladder of success" may be moving out of some students' reach....

... Most ... will drift along in a limbo that involves neither school nor promising work.

Two-thirds of the students we are concerned about drop out because they have given up on the school as a vehicle for their success. They do not believe it will work for them because it hasn't worked for them all their lives. ... In disconnecting from school, these teens disconnect from the values and ideals the schools embody and promote....

Experienced teachers and administrators can predict which students will most likely drop out even when the students are in the primary grades. ... Disconnection is not a tragedy because it happens; it is a tragedy because many people saw it coming for years and did nothing about it.

Ironically, some of the recent recommendations for improving schools will not touch the at-risk students or will affect them adversely. ... We favor higher standards. We think at-risk students can meet them with the right kind of help. But, unless schools can take special measures to keep "on-the-edge" students from going over the edge, we can expect dropout rates to rise.

Disconnected From Work

Unemployment is not evenly distributed across the population. ... In part, the high minority unemployment rates reflect the fact that minorities are often concentrated in areas where there are fewer jobs. In part, they reflect the fact that higher proportions of minority youth are under-skilled. In part, the rates reflect various kinds of discrimination and lack of access to job information and contacts....

There are several ways young people can be disconnected from work. One of them is physical: they may not live where there are sufficient jobs.

... Some youth, particularly minorities, are trapped in jobs that offer low pay, minimal or no fringe benefits and little chance for advancement....

A third kind of disconnection happens when young people lack the basic skills to do the available jobs. The schools bear primary responsibility for that. They must insure that students can read, write, handle basic mathematics and solve problems.

Many alienated youth ... are not very interested in work. They show little ambition on the job. ... It may be that the most important contribution of school for these youth is not the academic skills and knowledge students acquire, but the habits and values that schools also impart to youth. Schools must become better at instilling in students a sense of responsibility, self-discipline, reliability and a capacity for working harmoniously with others.

Broader Disconnections

Dropping out and unemployment ... are also symptoms of underlying problems with the nation's integrative systems. Other symptoms also suggest that traditional American ways of integrating generations and ethnic groups into the mainstream are under stress:

- Teenage pregnancy and childbirth rates have grown for all teens, regardless of ethnicity and socioeconomic status. ... Most of these teenagers do not marry.
- Arrests of people under 18 for drug abuse increased....
- Young people under age 21 account for more than half of all arrests for serious crimes....
- The homicide rate for ... teens increased....
- Death by suicide among teenagers increased for all groups. ... A teenager commits suicide every 90 minutes.

Increases in youth suicide, crime, drug use and pregnancy are independent phenomena with their own origins..., but these are all signs of alienation and disconnection. All suggest that family, community, school and other agencies of socialization and integration are not working as they once were.

Certainly, there is evidence that the American family is changing....

We do not know all of the consequences of growing up in single-part families. However, research does confirm that various indicators of disconnection, such as dropping out, truancy, delinquency and poor academic performance, are linked to family structure and family education support variables....

Recent trends in adolescent pregnancy and parenthood are of particular concern. ... When coupled with the increasing tendency for teenagers to raise their own children, the result is an increasing number of single teenage parents. ... Many of these young mothers do not return to school. Teen parents who drop out place their children at risk.

We believe that schools, social service agencies, [religious organizations,] businesses and community service organizations must step in to address the needs of alienated youth and mitigate the unanticipated consequences of changing family structure. Since schools have been a most powerful public integrative system, schools are a good place to start. Since jobs for young people are powerful private-sector integrators, changes should be made in the kinds of jobs young people get and their relation to later jobs....

Reconnecting Our Youth

... Many youth are not well served by the traditional education structure. Others find the transition into the world of work exceedingly difficult. ... Students who drop out and lack skills for employment are more often unemployed than others. They have higher crime and delinquency rates. They pay little in taxes and appear more often on welfare rolls. For corporate America, and for state and local governments, they represent a $20 billion-a-year-loss....

CHALLENGES

To Education Leaders:

... Effective early education is far less costly than remedial education. Preventing students from dropping out is less costly than training dropouts.

... [F]or high-risk youth ..., what we are doing now does not work. ... If a youngster is not responding to a normal program, try something new. If that does not work, do something else.

Reform must move into postsecondary education as well. Too many institutions of higher education view the at-risk teenager as someone else's problem. As the entry-level job pool shrinks, so does the pool of potential undergraduates.

- ... We challenge education leaders to be as daring in their reform as the most daring businesses have been in their efforts to adjust to a new world economy.
- Early childhood education helps children who are at risk. ... We need more and better early childhood enrichment programs.
- Quality after-school care ... is especially important for children of poverty.
- As a baseline standard ... every 6th grader should be able to read, write, speak and compute at a 6th grade level. Those who cannot should not be relegated to remedial programs that only repeat the pedagogy that failed the first time.
- High school dropouts need opportunities to drop back in. ... They need separate schools within schools, alternative schools that are truly alternative, work-study programs or cooperative education programs. The need for these options far exceeds their availability.
- Secondary schools, community colleges and four-year institutions should expand cooperative programs for meeting the educational needs of their clients and create new collaborative program where the need is clear.

To Business Leaders:

The businesses and unions with whom youth make their first contacts with the world of work must make an effort to see that any youth who wants to work has the opportunity to do so. ... Business and labor must also see to it that the early job experiences of young people are positive experiences....

- Join in cooperative education programs that connect students to role models in the world of work....
- Assure that the resources available through the Job Training Partnership Act and similar programs are used to build or support successful programs for at-risk youth.
- See to it that every job is an opportunity to develop character and self-esteem....
- Develop incentives for employees to stay in school, go back to school or go on to further schooling.
- Develop networks and contact with public organizations that specialize in training at-risk youth for specific jobs....
- Develop transportation options that link young people to jobs....
- Provide opportunities for employees to work with schools and programs that turn troubled young people around. Donate in-kind services, facilities and materials to programs that work.
- Get behind schools that demonstrate sound management, clear goals and positive results....
- Sponsor seminars on business expertise useful to schools attempting to restructure....
- Form business advisory councils, roundtables and other forums for discourse on public policy issues....

To Policy Makers:

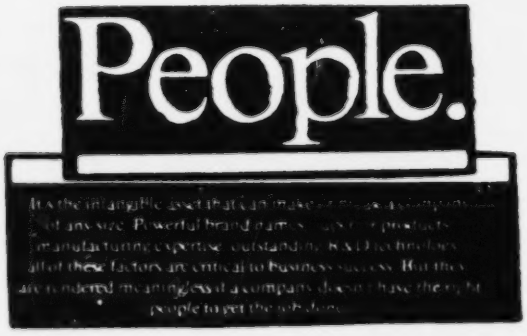
... Create the incentives. Remove the barriers.... Revamp state and federal programs for at-risk youth where they are not accomplishing their aims. Coordinate youth programs and develop opportunities for all youth to work, either in private-sector jobs or in public service programs....

... This country is undergoing profound economic, social and demographic transformations that will insure continued pressure on our schools and businesses to be more productive, more creative and more responsive every year than they were the year before....

- Develop community and state service opportunities to deal with unemployed, underskilled, idealistic or disconnected youth all at the same time....
- Create incentives for widespread adaptation and replication of successful youth education, employment and service programs.
- Coordinate programs to maximize incentives and eliminate barriers....
- Consider new structures and procedures for effecting the transition from school to work or other productive pursuits.

... Many at-risk youth lack the knowledge and sophistication required in making the transition from school to future work and learning opportunities. Young people today need more and better guidance than ever before.

... The keys to dealing effectively with this problem are leadership and collaboration. There is no single answer, no single or simple solution to the problems of at-risk youth. We know that schools can and must play major roles in any collaborative approaches to these problems. If they cannot do so in their present institutional form, then they must be flexible enough to find new and better ways to integrate at-risk youth into the mainstream.



October 1988
Dr. J. P. Lisack

Census survey shows higher education pays

By Desda Moss
USA TODAY

· FRIDAY, OCTOBER 2, 1987 ·

Workers with college degrees had an average monthly income of $1,910 in 1984, nearly twice the $1,045 average for those with just a high school diploma, says a new Census Bureau report released today.

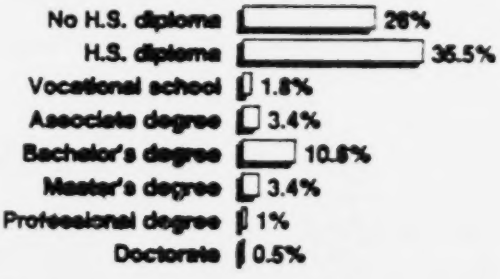
"There's strong evidence that the more education you get, the higher your pay and the lower your unemployment rate," said Patrick Scheetz, assistant director of placement services at Michigan State University.

Among the Census report's findings:

- About 21 percent of adults have earned a degree beyond high school: 23 percent of men, 19 percent of women.
- 53 percent of adults have only a high school diploma.
- Average monthly income for workers with a bachelor's degree was $1,841, but salaries varied between fields.
- 23 percent of the men had degrees in business, compared with 15 percent of the women.

College degrees scarce

Fewer than 16 percent of the people in the USA have a college degree. Percentage of people who have attained the following education:



By sex, race

	Men	Women	White	Black
No H.S. diploma	25.3%	26.7%	24.4%	38.6%
H.S. diploma	32.7%	38.0%	36.1%	32.7%
Vocational	1.3%	2.3%	1.9%	1.4%
Associate	3.5%	3.3%	3.5%	2.6%
Bachelor's	11.9%	9.5%	11.1%	5.2%
Master's	3.8%	3.0%	3.6%	1.5%
Professional	1.8%	0.3%	1.1%	0.3%
Doctorate	0.7%	0.2%	0.5%	0.2%

By age group

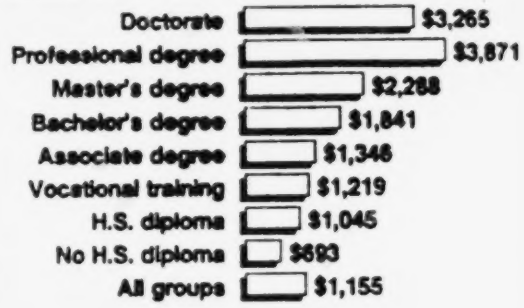
	18-24	25-34	35-44	45-54	55-64	65+
No H.S. diploma	18.8%	14.3%	16.6%	25.4%	36.2%	54.0%
H.S. diploma	38.8%	37.0%	35.7%	40.2%	35.3%	25.3%
Vocational	1.4%	2.0%	2.2%	2.0%	1.7%	1.5%
Associate	3.4%	5.2%	4.5%	3.0%	1.9%	0.9%
Bachelor's	6.9%	15.7%	14.2%	9.5%	7.9%	5.9%
Master's	0.2%	3.9%	6.4%	4.5%	3.1%	2.0%
Professional	0.0%	1.3%	1.8%	1.1%	1.2%	0.7%
Doctorate	0.0%	0.4%	0.8%	0.6%	0.6%	0.4%

Source: U.S. Census Bureau

By J.L. Albert, USA TODAY

Income parade

Average monthly income of people with these educational attainments:



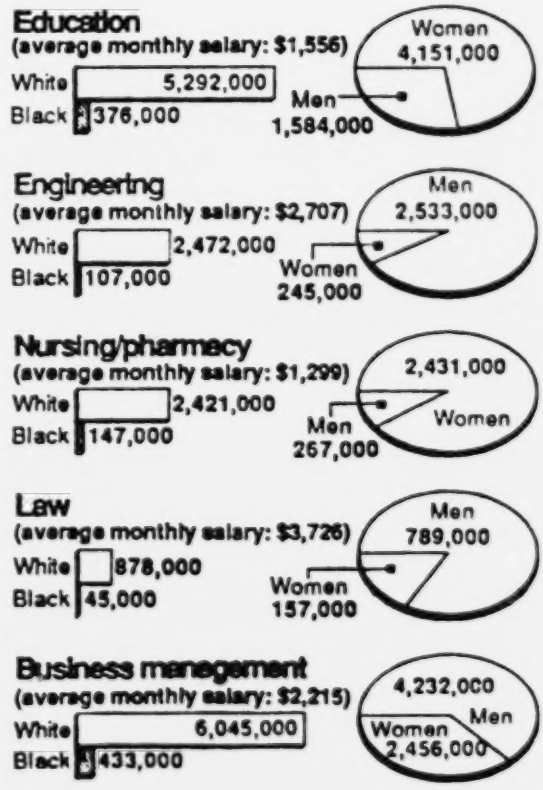
By sex, race

Education	Men	Women	White	Black
Doctorate	$3,667	n/a	$3,342	n/a
Professional	$4,309	$1,864	$3,927	n/a
Master's	$2,843	$1,645	$2,287	$1,966
Bachelor's	$2,455	$1,148	$1,881	$1,388
Associate	$1,755	$959	$1,367	$1,158
Vocational	$1,822	$923	$1,248	$860
H.S. diploma	$1,510	$684	$1,080	$765
No H.S. diploma	$973	$453	$734	$513
All groups	$1,620	$734	$1,208	$754

n/a - too few people in category for representative sample.

Where we are working

Breakdown of people working in various professions:



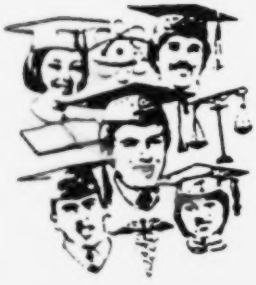
Applies to ADULTS as well as YOUTH

BRIDGING THE GAP BETWEEN

AND

• EDUCATION

■ EMPLOYMENT



• ENGLISH

• Computer Orientation

• Math

■ JOB SKILLS

■ Personal Work Habits and Attitudes

■ Computing

■ Reasoning and Problem Solving

■ WRITING

• SOCIAL AND ECONOMIC STUDIES

• Health

• Physical Education

■ READING

■ Communicating

■ Inter-Personal Relations

• ART

• Music

• Physical and Life Sciences

■ VALUE SYSTEM

■ WORK ETHIC

Source: USA TODAY research

Young workers lack skills

By Neal Templin
USA TODAY

Young workers lack the skills needed for today's jobs, and the gap could widen in the coming years, a government report says.

The study, from the departments of Labor, Commerce and Education, says the nation's schools must be strengthened through basic education reforms and businesses must take greater responsibility to produce competent workers.

At a conference Monday when the study was released, business, labor, academia and government leaders say statistics show the skills gap of entry-level workers is growing.

→ Two-thirds of 134 employers surveyed said new employees lacked basic skills in writing, math, problem-solving and communication.

→ More than 1 million young people drop out of high school each year, and the dropout rates of many urban schools are close to 50%.

→ About 70 million adults are functionally illiterate or are borderline illiterate.

"Our young entrants into the labor force are proving to be disturbingly deficient" in English, math, science and other basic skills, says Commerce Secretary William Verity.

The problem is increasing because the pool of teen workers is shrinking while jobs are getting more demanding, says Karen Dobbins, at First Bank of Minneapolis, one of the firms surveyed: "We don't have the cream of the crop to pick from anymore."

Employers will be begging for skilled workers, while the unskilled are left out

BUSINESS

The great jobs mismatch

Today and for the rest of the century, the U.S. is hanging out a "Help Wanted" sign -- but only selected applicants need apply. Not only is the pool of new workers shrinking fast, there's also a growing mismatch between the skills they bring to the job and those employers are crying for. The scramble could herald a golden decade of rising salaries and greater job opportunities for anyone trained to handle advanced technologies and complex information. More women will get the chance to move up to managerial and technical positions. Opportunity will knock for many baby-boomers sidetracked in the 1970s. Trained immigrants will be sought after. But for people without a college education or experience, the century's closing years could be an economic dark age.

Looking at the numbers, the U.S. labor force is on a demographic roller coaster, careening from the baby boom to the baby bust. Between now and the year 2000, the supply of new job seekers will barely inch ahead, expanding by just over 1 percent annually. That follows the '60s and '70s, when waves of baby-boomers, immigrants and female workers swelled labor's ranks by 2.4 percent a year -- growing faster than the population of India. Today, the nation counts 35.4 million 16-to-24-year-olds as the prime source of new labor. That's 1.1 million fewer than just a decade ago. And the number of youth of that age is expected to fall 5.1 million more in the next 10 years.

With fewer new workers to choose from, "the economy is catching fire for almost anyone with good education and experience," says Gordon Berlin of the Ford Foundation. But behind that good news, "there is a widening gap between what the economy requires and what the new labor force will provide," says Thomas Espenshade, senior research associate at the nonprofit Urban Institute. He estimates that through the end of the century, three fourths of all new jobs will need people with some college education and skills -- while only about half of all new workers are likely to have gone beyond high school. Moreover, computerization of the workplace will move millions of today's lower-level jobs out of the reach of the less skilled. ... As a result, the labor force may well include a growing army of unskilled workers, especially young blacks and Hispanics, facing at best fitful employment.

Boom Time for Baby-Boomers ... The squeeze for new skilled labor is forcing many employers to take special steps -- from raising starting salaries to expanding retraining programs -- to get the people they need....

However, the big winners in coming years may well be educated and experienced baby-boomers. Some of those boomers, forced in the 1970s to take jobs for which they were overqualified, will get second chances to shift directions and move up. "Companies paying top dollar are figuring out they can find 30-year-olds with experience who will gladly work nearly as cheaply as the top new graduates," says Victor Lindquist, head of job-placement services for Northwestern University.

Even more important for the boomers, many firms are easing the labor squeeze by expanding on-job retraining. ... Says Peter Cannon, Rockwell [International's] chief scientist: "We need skilled people, and we will do what we have to to get them. With the demographics of the baby bust, it's cheaper to retrain those we've already got."

More Choices For Women ... The tightening market for skilled labor will also help working women. The gap between women's and men's wages -- is beginning to close. In the last six years, the ratio of women's wages to men's rose from 60 to 65 percent. And the Census Bureau reports that working women, age 20 to 24, now earn on average only 16 percent less than young men -- compared with a 23 percent gap in 1980. Whatever their jobs, more women will take their places in the working world -- if only because more women now consider meaningful and well-paid work to be a desirable and achievable goal. The BLS estimates that, by 1995, 81 percent of adult women age 25 to 44 will hold jobs, as against 72 percent today.

Hard Times For Minorities ... Minorities may find themselves in special peril. Nearly half of all new workers between now and 2000 will be black or Hispanic -- groups "disproportionately represented among those with less education," according to a new Labor Department study of Americans' job prospects in the 1990s.

Pages of want ads for counter jobs at fast-food restaurants show that there is still work for those with few skills. The problem for young, inner-city job seekers is that most of the jobs are in prosperous suburbs, out of commuting range.

The pinch on the low-skilled will be aggravated by a continuing slide in well-paid blue-collar jobs.

All the evidence "points to growing economic inequality," says University of Maryland economist Frank Levy. And that poses the danger that the U.S. will enter the 21st century as a nation of haves and have-nots glaring at each other across a deep divide defined by education and skills.

*Source: U.S. News & World Report, September 7, 1987, pp 42-43.

MISMATCH: SKILLS PEOPLE HAVE AND EMPLOYERS' NEEDS

IMPLICATIONS FOR PRODUCTIVITY

The mismatches posed by the demographic and economic setting are striking and disturbing:

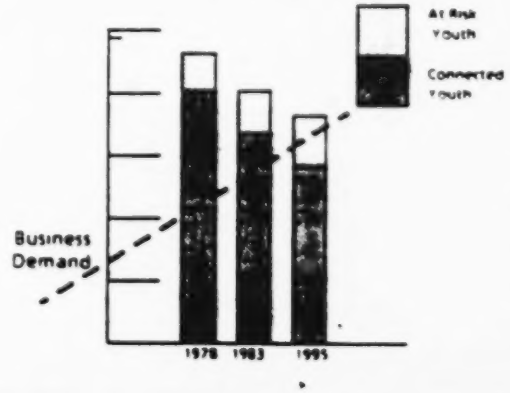
- More jobs will require not only basic skills but also problem solving, analytical and communicating skills, yet a growing percentage of the projected new labor force entrants are expected to lack these skills.
- Change will be the hallmark of the workplace, but many smaller businesses are too small to provide formal on-site training, while many training facilities they might use are out of date; at the same time, most of the workforce of the late 90's and year 2000 is already working and will need retraining.
- Dislocation can be expected, several magnitudes larger than we have known in the past but attempts to address these dislocation problems have proved inadequate to date.
- More than ever both youth and adults will need better information on available jobs and a better understanding of their aptitudes; yet programs for labor market information, counseling and assessment have regularly been reduced over the last number of years.

If nothing is done to address these problems, serious repercussions are likely.

Employers will find it difficult to fill entry level jobs. Finding large numbers of youth unmotivated and under-educated, business might appeal for increases in immigration or out-source work to other countries. If those options are not feasible, employer costs for remedial training and hiring young people would increase substantially, reducing business' competitiveness in the world market. And where opportunities to use outside labor increase, we can expect large segments of our population to be left out, unable to obtain work. The effects to society of this growing under-class are obvious: increases in welfare, crime, and unrest.

Prime age workers will become less productive. The nature of the jobs of most current workers will change in the coming decade. If employers have not anticipated or prepared workers for these changes, job losses may occur; certainly, there will be inefficiencies in operation. Workers are also apt to be less committed to their work if they believe their employers are not systematically attending to their training and retraining needs. An increasing number of workers, who may need or want to change careers to increase job satisfaction or stability, may find that public and private institutions are unable to provide proper guidance about the labor market or offer appropriate training. At best this will result in losses in productivity; at worst it will lead to long-term dislocation.

Declining Youth Population With an Increasing At-Risk Segment Compared to Rising Business Demand for Entry-Level Employees



In 1978, 23 percent of the total U.S. population were between the ages of 16 and 24. By 1983 that percentage had dropped to 19 percent. Based on current birth rates, it will further decline to 16 percent by 1995. At the same time the percentage of youth at risk is growing. Assuming that the nations's economy continues to expand at a moderate pace, business will be forced to dip increasingly into the at-risk segment of the entry-level youth employment pool.

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HIGH SCHOOLS AND THE CHANGING WORKPLACE: THE EMPLOYERS' VIEW

(HIGHLIGHTS FROM A PANEL'S STUDY)*

What is Needed

This report concentrates on the needs of high school graduates entering the labor force from high school and reflects employers' views of what these graduates will need to perform effectively in the workplace in the years ahead of them. The largest segment of the American work force consists of high school graduates who have not attended college, and the nation's economic well-being depends heavily on their performance....

Employers took the viewpoint of necessary skills rather than required courses. How employees obtain skills matter less to employers than whether they possess them. ... Young people ... must prepare for a lifetime of change, both in the nature of work and in the working environment. ... [Employers] deplored the tragic waste of talent, energy, and aspirations symbolized by the large numbers of young people who do not finish high school. ... A high-quality secondary education represents the minimum preparation a young person needs to participate successfully in our economic system....

Size ... often limits severely the resources available for helping employees to learn skills. Where a large corporation or agency may maintain an elaborate training program -- perhaps even a formal school -- a small enterprise might be hard-pressed to release an experienced employee to train a newcomer. Large corporations frequently prefer to hire bright, well-educated nonspecialists and teach them their own way of processing data, mixing chemicals, maintaining equipment, and the like. A small employer, however, often needs an employee who already possesses specific job skills. Skills obtained in vocational courses or previous work experience might be crucial, therefore, to getting a good job with a small employer; such skills often matter less to large employers who intend to put a new worker through a training program anyway. Because small employers constitute so significant a number of those who hire young workers, vocational skills, in addition to a sound education in the core competencies, certainly increase employability.....

Jobs for a Lifetime: Careers

A job is not a career. A career is a series of jobs, each often involving new responsibilities, new knowledge, and new skills. ... The ability to learn, therefore, is vital to every worker throughout an entire working lifetime. ... Careers are built on performance over a number of years and, ideally, on a number of increasingly desirable jobs. The early ones need not either define or limit the ultimate character of a career. What defines and limits a career is the individual's ability to learn throughout life. What will never change is the need to adapt to new opportunities.

What High School Graduates Need

A person who knows how to learn is one well grounded in fundamental knowledge and who has mastered concepts and skills that create an intellectual framework to which new knowledge can be added. However, it is precisely in the basic intellectual skills that young employees show the greatest deficiencies. Many lack the ability to draw correct inferences from written, pictorial, or mathematical information; to understand oral instructions; to develop alternatives and reach conclusions; to express their ideas intelligibly and effectively; and to apply such basic concepts of economics as profit and cost. All of these skills are important, even in entry-level jobs. Advancement to more responsible posts requires skills of an even higher order, including the ability to compose tables and reports, to consult reference and source materials, to apply mathematical concepts and procedures, to control complex equipment, and to address groups....

Beyond these specific skills, the panel agrees that young people need additional characteristics to succeed on the job: attitudes and understanding that lead to good work habits and successful interpersonal relationships. A clear understanding of the rights and responsibilities of workers and employers, and of the place of each in economic and social life, will help students to function effectively as workers and to exercise their rights as employees and citizens.

... [T]he education needed for the workplace does not differ in its essentials from that needed for college or advanced technical training. The central recommendation of this study is that all young Americans, regardless of their career goals, achieve mastery of this core of competencies up to their abilities. For those intending to enter the work force directly after completing high school, additional training in specific vocational skills will increase employability and is naturally desirable. But no other skills, however useful or worthwhile, can substitute for the core competencies.

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* Panel on Secondary School Education for the Changing Workplace, High Schools and the Changing Workplace: The Employers' View. Washington, D.C.: National Academy Press, 1984. 2101 Constitution Ave., N.W.; Washington, D.C. 20418. 50p. $5.25.

Young people not planning on going to college may not require advanced or highly theoretical courses..., but they must have a working knowledge of these disciplines to permit them to perform job tasks accurately, correctly, and with understanding....

Mastery of the core competencies to the best of one's abilities is both a necessary and reasonable goal. What differentiates students who end their education upon completion of high school from those going to college is not necessarily the ability or desire to learn.... These differences do not dictate any lowering of educational standards, but they may suggest some variation in educational settings or techniques. Some students learn best in a scholastic environment; others in settings closer to "real life." Students not planning on postsecondary education, however, actually have less time to master the foundations of learning than those going on to college....[Underline added]

The Core Competencies

The panel concluded that the need for adaptability and lifelong learning dictates a set of core competencies that are critical to successful careers of high school graduates. These competencies include the ability to read, write, reason, and compute; an understanding of American social and economic life; a knowledge of the basic principles of the physical and biological sciences; experience with cooperation and conflict resolution in groups; and possession of attitudes and personal habits that make for a dependable, responsible, adaptable, and informed worker and citizen.

- The core competencies judged by the panel to be required by employers and for success in employment include:
- **Command of the English Language** ... All need a functional command of standard English in written and spoken forms.
- **Reasoning and Problemsolving** ... is an essential condition for success in [life and] employment....
- **Reading** ... Ability to read, comprehend, and interpret written materials ... critically and extensively....
- **Writing** ... Ability to organize and state information clearly and concisely in written form that is grammatically correct....
- **Computation** All students need to be able to understand and apply basic mathematics, at least through elementary algebra. An understanding of geometry and trigonometry is desirable....
- **Science and Technology** ... [W]orkers need to feel comfortable with advanced technologies as they become more pervasive in our economy, schools must encourage all students to acquire a firm grounding in science and technology ... including acquaintance with the basic functions of computers.
- **Oral Communication** Job success requires the aptitude to communicate thoughts and information through speech....
- **Interpersonal Relationships** Success in a career depends on the capacity to deal constructively and effectively with others. Young people must understand that the standards of behavior, speech, and dress expected of employees often differ markedly from those acceptable in student circles. They also must realize that conflicting interests and opinions are inherent in many social interactions, but that such conflicts can and should be resolved through constructive means. Finally, they must recognize that employers cannot tolerate behavior, even if innocently intended, that offends customers, colleagues, other employees, or members of the general public....
- **Social and Economic Studies** Understanding how employees and employers fit into the economic structure of the community and country is essential to an appreciation of one's own contributions and responsibilities.... Students can gain this understanding best through a knowledge of how the American society and economy function, how various groups and interests interact, and what they can expect of one another....
- **Personal Work Habits and Attitudes** ... indicate the level of responsibility one is capable of assuming. Positive habits and attitudes contribute significantly to success in performing tasks, dealing with others, and gaining employment. They are also vital to success in school and should be cultivated long before a student enters the work force....

These competencies are goals, by no means universally achievable to the same level by all, but nevertheless important for all to strive toward. [T]hey are incomplete goals, limited to those believed necessary for preparing high school graduates for satisfying careers. These goals must be supplemented by others if high school graduates are to participate fully in the cultural and civic life of this country.

Students must prepare for a lifetime of learning by mastering the core competencies to the best of their ability. Young people are ultimately responsible for realizing their aspiration....

Math—at Various Levels—Is Important in a Wide Range of Jobs

Advanced levels of theoretical math are required for the following jobs:

Actuaries
Agricultural and food scientists
Architects
Biological scientists
Chemists
Computer systems analysts
Economists (theoreticians)
Engineers
Foresters and conservation scientists
Geologists, geophysicists, and oceanographers
Mathematicians
Mathematics teachers (secondary school and college)
Meteorologists
Operations research analysts
Physicists and astronomers
Statisticians

Applied mathematics is important in the following jobs:

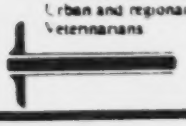
Accountants and auditors
Aircraft pilots and flight engineers
Air traffic controllers
Computer programmers
Cost estimators
Dentists
Drafters
Economists (applied)
Electrical and electronic technicians
Engineering technicians
Financial managers
Insurance sales workers
Landscape architects
Management analysts and consultants
Optometrists
Pharmacists
Physical and life science technologists and technicians
Physicians
Psychologists
Real estate agents and brokers
Securities and financial services sales workers
Sociologists
Surveyors
Tax examiners, collectors, and revenue agents
Underwriters
Urban and regional planners
Veterinarians

Practical "shop" mathematics is needed for the following jobs:

Automobile mechanics
Bricklayers and stonemasons
Broadcast technicians
Carpenters
Construction and building inspectors
Electrical and electronic equipment repairers
Electricians
Industrial machinery mechanics
Inspectors, testers, and graders
Jewelers
Layout workers, metal precision
Machinists
Mechanics, installers, and repairers
Metalworking and plastic-working machine operators
Millwrights
Numerical control machine tool operators
Ophthalmic laboratory technicians
Plumbers, pipefitters, and steamfitters
Precision instrument repairers
Sheet-metal workers
Shipfitters
Structural and reinforcing metal workers
Surveying and mapping technicians
Tool-and-die makers
Tool programmers, numerical control
Welders and cutters

Arithmetic is important in the following jobs:

Bank tellers
Billing, cost, and rate clerks
Bookkeepers, accounting and auditing clerks
Brokerage clerks
Cashiers
Counter and rental clerks
Insurance claims and policy processing clerks
Loan and credit clerks
Mail carriers
New accounts clerks, banking
Order clerks
Payroll and timekeeping clerks
Reservation and transportation ticket agents and travel clerks
Sales counter clerks
Statement clerks
Statistical clerks
Stock and inventory clerks
Traffic, shipping, and receiving clerks
Weighers, measurers, and checkers



How Much Is Enough?

Math is not an easy subject for some people to learn—but it can be learned. Some young people are "psyched out" by math, confusing lack of effort with lack of aptitude. But extra effort in this area now will pay you big dividends in the future. We live in an increasingly technical world, one that requires more education, including math. Applications of mathematical skills are being used in fields not directly connected with math—the life sciences and the social sciences, for example.

Deciding how much high school math to take is easier if career goals have been established. However, it is better to take what may seem to be too much math rather than too little. Career plans change, and one of the biggest roadblocks in undertaking new educational or training goals is poor preparation in mathematics. Furthermore, not only do people qualify for more jobs with more math, they are also better able to perform their jobs because of the math they have taken.

For some jobs, such as secretary or cashier, a year of high school consumer math is enough. But some of these occupations will require at least some additional high school math in the future. And as technology increases, workers with little training in mathematics may face a narrower range of career possibilities.

Students interested in the skilled trades often need several years of shop math. Two years of regular high school mathematics are often needed for admittance to a technical or junior college, especially in technical or science programs.

Science—at Various Levels—Is Important in a Wide Range of Jobs

Advanced levels of science are required for the following jobs:

Agricultural and food scientists
Architects, including landscape architects
Biological scientists
Chemists
Chiropractors
Curators, archivists, museum technicians, and restorers
Dentists
Dietitians and nutritionists
Engineers (all specialties)
Farm and home management advisors
Foresters and conservation scientists
Geologists, geophysicists, and oceanographers
Landscape architects
Medical and clinical laboratory technologists
Meteorologists
Occupational therapists
Optometrists
Pharmacists
Physical therapists
Physician assistants
Physicians
Podiatrists
Recreational therapists
Registered nurses
Respiratory therapists
Speech pathologists and audiologists
Teachers, secondary and college (sciences)
Veterinarians and veterinary inspectors

Applied science is important in the following jobs:

Aircraft pilots and flight engineers
Broadcast technicians
Dental hygienists
Dental laboratory technicians
Dietetic technicians
Electrocardiograph technicians
Electroencephalograph technicians
Emergency medical technicians
Engineering technicians (all specialties)
Licensed practical nurses
Medical and clinical laboratory technicians
Medical records technicians
Nuclear medicine technologists
Occupational therapy assistants
Opticians, dispensing and measuring
Physical and correctional therapy assistants
Physical and life science technicians
Radiologic technicians
Radio operators
Ship engineers
Surgical technicians
Surveyors

Practical applications of science are involved in the following jobs:

Animal caretakers
Bakers, bread and pastry
Bakers, manufacturing
Blasters and explosives workers
Butchers and meatcutters
Chemical equipment controllers
Chemical plant operators
Cooks, except short order
Cosmetologists
Dental assistants
Electromedical and biomedical equipment repairers
Electricians
Farmers, farm operators, and managers
Firefighters
Fishers, hunters, and trappers
Food batchmakers
Foundry mold and core makers
Gardeners and groundskeepers
Jewelers
Lithographic and photoengraving workers
Machinists
Mechanics, installers, and repairers
Medical assistants
Millwrights
Nursing aides, orderlies, and attendants
Occupational therapy assistants
Pest controllers and assistants
Petroleum refinery and control panel operators
Pharmacy assistants
Photographic process workers
Physical and correctional therapy assistants
Plumbers, pipefitters, and steamfitters
Precision instrument repairers
Printing press operators
Riggers
Rotary drill operators, oil and gas
Shipfitters
Stationary engineers
Structural and reinforcing metal workers
Tool-and-die makers
Water and wastewater treatment plants operators
Welders and cutters

Science—at Various Levels—Is Important

We are all scientists and engineers in our way. Our homes have electric lights, telephones, and TV's—all scientific inventions using discoveries we put to use every day. We operate electronic calculators, home computers, and video games—products of our electronic age. Some of our hobbies—photography and sailing, for instance—also make use of scientific and engineering principles.

For every scientific discipline, a constantly growing string of unanswered questions and unsolved problems remains to be studied. Tens of thousands of scientists and hundreds of thousands of engineers and technicians are employed to unravel these mysteries.

Even if you do not want to become a scientist, some understanding of science can be useful. A scientific background helps develop logical thinking, and scientific investigation can be intriguing. Learning, for example, why days are shorter in winter than summer can be interesting and fun. A knowledge of science also helps us understand choices we face.

In addition, most colleges require at least 2 years of high school science courses for entry even into nonscience curriculums; scientific and technical curriculums require 3 or 4 years. Employers and college admissions officials look favorably upon students who have taken difficult courses, such as science.

SUPPORT FOR ACADEMIC ACHIEVEMENT

Many recent calls for educational reform have stressed the need for a more academic emphasis throughout the school years. Such calls have pointed to the need for higher academic expectations and increased coursework for poor-performing and historically at-risk populations, as well as for historically high-achieving groups of students.

In this assessment, eleventh-grade students self-reported whether they were enrolled in a general, academic/college preparatory, or vocational/technical school program; they were also asked about their plans after high-school (see Table below). Nationally, some 52 percent claimed to be in an academic or college preparatory program, and a nearly identical percentage planned to go on to a four-year college. Over one-half of the White students (54%) reported following an academic program, but the percentages of Black and Hispanic students enrolled were smaller (45% and 37%, respectively).

Eleventh graders were also asked about the coursework they had selected in high-school. The results indicate that the better readers were more likely to have taken more advanced coursework in a variety of subjects, including English, mathematics, and science. Nearly three times more students in the top quartile than in the bottom quartile reported that they had enrolled in advanced coursework. Although these patterns are hardly surprising, they bring to mind such questions as: Would the lower-achieving students have done better if they had been enrolled in more demanding courses in the first place? Does the pattern of course selection and placement reflected in these data simply reinforce patterns of lower or under-achievement?

TABLE 4

AVERAGE READING PROFICIENCY* AND PERCENTAGE OF STUDENTS IN GRADE 11 BY VARIOUS HIGH-SCHOOL PROGRAMS** IN THE U.S.: 1986

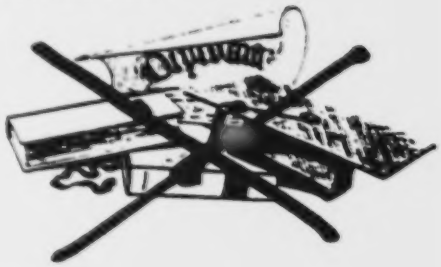
	Type of High-School Program**								
	Academic			General			Vocational/Technical		
Group	% of Group	% of Program	Profic.*	% of Group	% of Program	Profic.*	% of Group	% of Program	Profic.*
NATION	51.9%	100.0%	59.6	38.1%	100.0%	52.7	10.0%	100.0%	50.8
White	54.2%	NA	60.6	36.8%	NA	53.8	9.0%	NA	52.0
Black	44.6%	NA	54.4	40.5%	NA	49.2	14.9%	NA	48.1
Hispanic	56.8%	NA	54.7	50.6%	NA	49.8	12.6%	NA	48.1
Upper Quartile	78.0%	37.6%	66.1	18.9%	12.4%	63.7	3.1%	7.8%	62.6
Middle 2 Qu.	51.1%	49.2%	62.8	39.4%	51.7%	51.1	9.5%	47.5%	48.2
Lower Quartile	27.4%	13.2%	46.6	54.4%	36.0%	44.9	17.8%	44.5%	44.2

* One common scale: mean of 50.0, standard deviation of 10.0. ** Self-reported by students. NA: Not Available.

- Poor readers report doing less independent reading than good readers. But, in comparison with good readers, they seem to be even more limited in their school reading experiences than in the reading they do on their own. This suggests that poor readers could manage more varied school reading experiences than are currently provided by schools.
- Students at each of the grade levels assessed report that their teachers use a variety of instructional approaches designed to develop appropriate reading skills and strategies, before, during, and after reading.
- However, poor readers report that their teachers use a narrower range of approaches than are used with better readers. The approaches that are used with poor readers are less likely to emphasize comprehension and critical thinking, and more likely to focus on decoding strategies. Perhaps as a result, poor readers report using a narrower range of strategies to guide their own reading. The approaches reported by the eleventh-grade poor readers were remarkably similar to those reported by their third-grade peers.
- Results for various demographic subgroups within the population parallel those from earlier assessments. In particular, students from historically at-risk populations continue to perform poorly relative to the national population at each grade level. At grade 11, for example, average proficiency levels for minority and disadvantaged urban students are only slightly above the seventh-grade level for students nationally.
- Reading proficiency is also related to students' general literacy experiences. The more successful readers are likely to be enrolled in academically-oriented programs and advanced courses, to spend regular amounts of time on homework each day, and to have home support for reading.
- An inordinate proportion of poor readers tend to report that they are enrolled in vocational/technical programs or in general programs.

Source: The Nation's Report Card, Who Reads Best?, Educational Testing Service, National Assessment of Educational Progress, Rosedale Road, Princeton, New Jersey 08541-0001. February 1988.

SOCIAL COST OF DROPPING OUT OF SECONDARY SCHOOL*



A. SOCIAL COSTS OF DROPPING OUT

1) Individual or private costs
   a) Higher unemployment rates
   b) Higher periodic losses of employment
   c) Relegation to lower-paying occupations

2) Public or societal costs
   a) Lower productivity level (capacity and output)
   b) Lower income and lower tax revenue
   c) Greater need for welfare and unemployment subsidies
   d) Higher crime rates and associated social and judicial costs
   e) Higher health-care costs
   f) Lower electoral participation rates
   g) Tendency for similar parent-child educational attainment

3) Imbalanced distribution of dropout problem across societal groups
   a) The poor b) Language minorities c) Ethnic minorities

4) Suspicion that "contortions of the schools designed to keep would-be dropouts in could lead to qualitative differences in schooling, differences possibly interpreted as negative by potential employers"

B. SOCIAL COST ESTIMATES: 1981

1) $4947 annual income loss per average dropout (nationally): $5661/male, $4232/female

2) $1496 annual tax revenue loss per average dropout (nationally)

C. MISMATCH BETWEEN DROPOUT PROBLEM AND GENUINE PUBLIC ATTENTION

1) Costs may be generally underestimated: some appreciation of problem's magnitude suggested by school officials and legislators

2) Specific mismatch
   a) Dropout losses are <u>national</u> in impact, but
   b) Schools are <u>local</u> and <u>state-level</u> enterprises.
   c) Failure of citizens to generate income affects school officials and organizations only marginally, indirectly, eventually
   d) Differing time frames between intervention and benefit
      (1) Allocations of <u>current</u> public resources for promise of <u>future</u> returns
      (2) Electoral politics and "current" needs can dampen enthusiasm for long-term futuristic investing.
   e) Lack of consensus on ways to effectively encourage school completion
   f) Local development of answers to dropout problem seems required
   g) No nationwide attack plans exist
   h) Resistance or pessimism regarding dropout suggested by current behavior of school officials
      (1) Dropouts written-off as too expensive or troublesome to serve?
      (2) Dropouts out-of-reach long before they become evident?

3) Cost of educational deficit "will probably grow before we act concertedly to reduce it."

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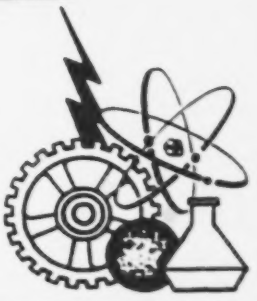
* <u>Source</u>: *James S. Catterall, "On the Social Costs of Dropping out of School." University of California, Los Angeles, (Revised). December 1985.*

PROJECTED ADVANCES IN SELECTED FIELDS OF SCIENCE AND TECHNOLOGY



In 1987, a group of over 500 scientific, engineering, educational and business experts associated with the Corporation for Science and Technology, located in Indiana, predicted that **"the world is on the verge of a major lifestyle, business, industry and educational upheaval, an upheaval which will be fueled by rapid technological growth and by a very competitive worldwide marketplace. This upheaval brings with it major threats and opportunities to the business and economic base of the United States."**

ADVANCED MATERIALS TECHNOLOGY is generating much excitement by the development of new materials in the laboratories which have not existed previously -- materials in the fields of semiconductors, polymers, ceramics and others. Major advances are predicted in powdered metallurgy; in super plastics and adhesives; in polymer, ceramic and metal-based composites; in steel surface treatments; in superconductive materials; in new metal materials and in structural ceramics.

In the area of **AGRICULTURAL GENETICS AND TECHNOLOGY,** the headlines center around new genetic manipulation and embryo transplantation in animal agriculture operations; plant genetic modification to provide improved plant characteristics; and integration of computers and artificial intelligence controls into a broad range of agriculturally related operations.

And in **ARTIFICIAL INTELLIGENCE,** the committee forecasts major advances in the use of expert systems, in the development of AI-oriented computer architectures, and new AI higher-order languages. They see the technology entering the field of natural language driven processing, in image and verbal recognition systems, in the translation from one language to another, vision for robotics, new generations of optical scanners to read and respond to written text, computer-aided instruction management and control, automatic programming and debugging of computer software, complex communications systems management and control, and in the development of materials and genetics characteristics prognoses.

In **BIOTECHNOLOGY,** a virtual technological explosion is predicted in which DNA probes, monoclonal antibodies and enzymes have been identified as high growth areas. Major advances in the areas of medical diagnosis and treatment, plant and animal characteristics engineering, and waste management are foreseen. Another major growth area is seen to be biotechnology-related manufacturing and quality-control systems as this technology begins to "take hold" across a wide range of industries....

In the field of **CONTROL SYSTEMS,** another rapid acceleration scene is predicted as advances in computers, microelectronics, optical systems, and Artificial Intelligence fuel the development of highly capable control systems throughout industry, homes, hospitals, military systems and others. Many of these systems will be vision capable and will utilize sophisticated sensor systems in real time, iterative-feedback process-control systems, in order to maintain the high level of control that many of the new processes will require.

In **ENERGY DEVELOPMENT,** advances are foreseen in the areas of new combustion technologies, post-combustion treatments, co-generation systems, and in shale-oil extraction systems. High-efficiency solar voltaic systems are also envisioned.

In the field of **INFORMATION PROCESSING,** the forecasts are for continuing explosive growth, with computing power per dollar continuing to double every four years during the period. New generations of software development will be aided by AI- based software generators and evaluators. ... [There will be] simultaneous voice and data handling systems that can place the information that you need where you need it. Strong shifts

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Source: Excerpts from the Technology Overview Report Presented by Dr. John D. Hague, Sc.D. - President of the Corporation for Science and Technology Combined Targeted Technology Committee Members Meeting, Indianapolis Convention Center, April 24, 1987. Extracted by Dr. J. P. Lisack, Purdue University.

to parallel processing are predicted. [Workers and] the general public [will be] increasingly involved with computers and computer products.

In **MANUFACTURING TECHNOLOGY**, advances are seen in AI, electro-optics, information processing and control systems. They see the need for increased automation to maintain the process controls that will be required and to deal with the reduction of product cost. They see integrated design, manufacturing and quality-assurance systems geared to support both high and low volume production...and they see interface standards emerging that will facilitate increased competition, lower costs and higher quality manufacturing technology. They see advanced control systems, many with 3-D vision, color and pattern recognition, with sophisticated tactile and force sensors. And they note the need to be able to deal with new materials.

In **MEDICAL TECHNOLOGY**, advances in biotechnology, in microelectronics, in telecommunications, artificial intelligence, optical technology and others will accelerate the development of sophisticated medical diagnostic, treatment, and management tools. The trend to out-patient treatment and care will accelerate the development of doctor's office and home-based systems for patient care. Less invasive surgical processes will increase, [including] lasers. Significant advances in the monitoring and control of anesthesia procedures are expected, as well as implanted microelectronic circuits to reinstate muscle control and bodily function control.

Biotechnological breakthroughs are expected to allow for improved diagnostics and patient treatment, as well as to allow the detection of persons who tend to be predisposed to given medical problems, such as high cholesterol and heart disease.

And in **MICROELECTRONICS**, the committee envisions continuing explosive growth as higher densities, higher speeds, higher reliabilities and lower costs continue.

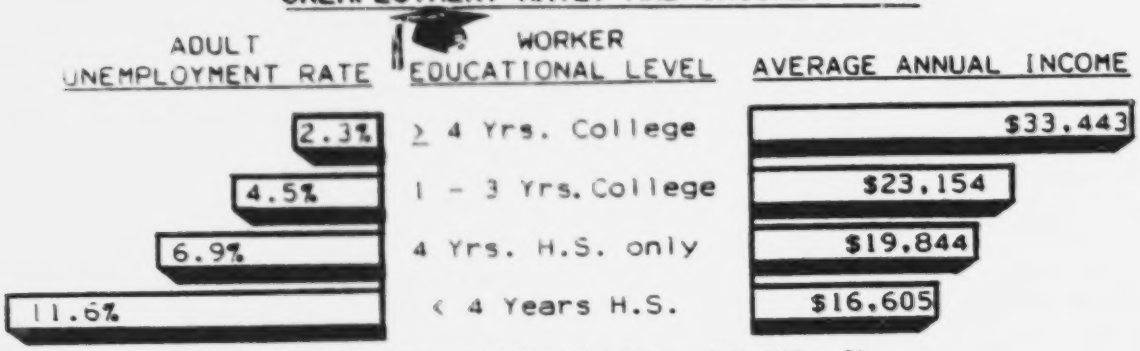
They see the increased use of Application-Specific Integrated Circuits (ASIC) by the medium and small sector of industry in order to protect their designs and to remain viable in cost and product capability. They see extremely high densities with an anticipated maximum of 100 million components per chip, with 5 million components per chip in the early 1990s and between 10 and 100 million by the year 2000. The anticipated advances in this technology will cause the microcircuit to permeate virtually every area of endeavor.

In **OPTICAL TECHNOLOGY**, optical data transmission through fiber optic systems will mature and spread rapidly and set the stage for a rapid increase in low-cost, broad-band communications. Optical sensors will provide automation systems with the inputs needed for monitoring and control...and optical computers will meet many high-speed computing needs. Optical data-storage-technology breakthroughs will usher in a new generation of information-storage systems with widespread applications in factories, homes, schools, offices and retail outlets, and in communication systems. The optical technologies are so basic to the next generation of products, processes and operations that they deserve attention by every organization, regardless of their present products, processes or functions. The optical technologies will constitute major threats and opportunities for thousands of businesses worldwide.

Major changes are foreseen in **TELECOMMUNICATIONS**. Single integrated-digital-network systems are predicted to replace individual stand-alone systems that presently handle phone traffic, data and facsimile traffic and local-area network traffic. A worldwide digital network protocol will emerge, paving the way for growth in the digital communications industry. Use of microelectronics and optical technologies in local and long distance telecommunications systems will increase. This telecommunications network upheaval will affect all walks of business and industry, education, the medical care industries and the home.

Dr. Hague concluded by saying, "Well, that information went by so rapidly that you probably feel as if you have just taken a drink from a fire hose...."

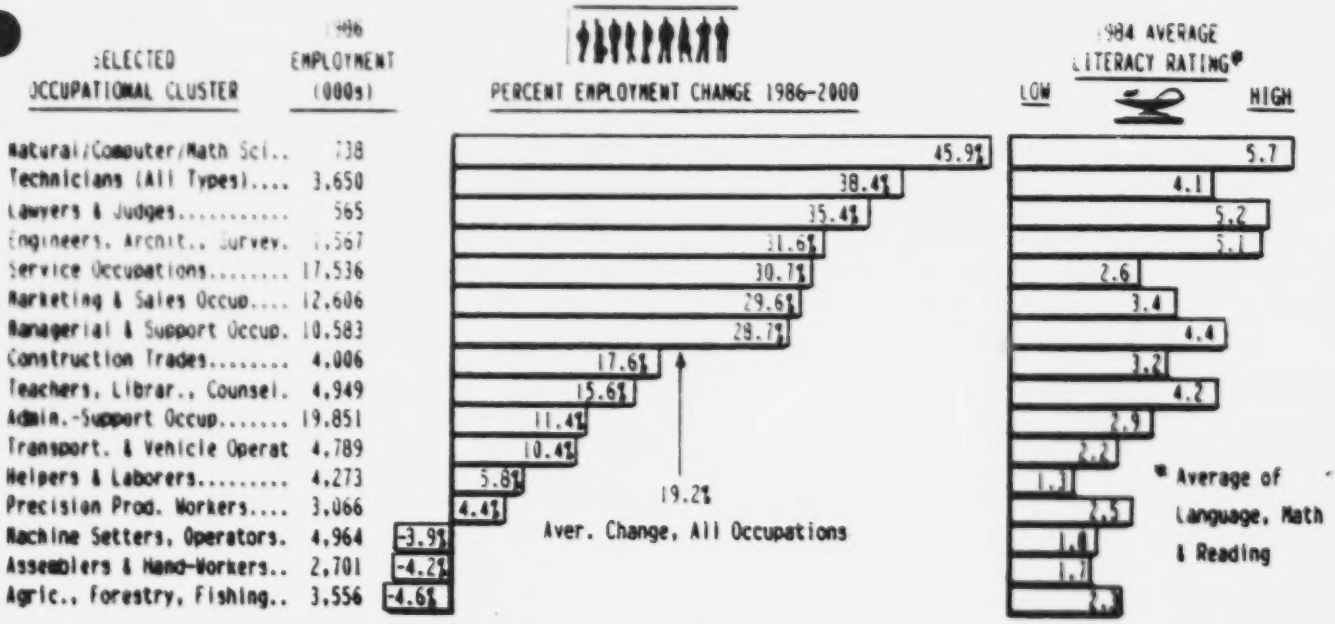
RELATIONSHIPS AMONG EDUCATIONAL LEVEL, UNEMPLOYMENT RATE, AND INCOME: 1986



Source: "Projections 2000," Occupational Outlook Quarterly. Fall 1987, p.36.

The chart above graphically illustrates that: (1) the higher the formal educational level, the greater the average annual income and (2) the lower the formal educational level, the higher the unemployment rate. -- Just two more ways to show that education pays off.

THE CHANGING U.S. LABOR FORCE (1986 - 2000) AND LITERACY SKILL LEVELS BY SELECTED OCCUPATIONAL CLUSTER:


SELECTED OCCUPATIONAL CLUSTER
1986 EMPLOYMENT (000s)
PERCENT EMPLOYMENT CHANGE 1986-2000
1984 AVERAGE LITERACY RATING*
LOW
HIGH
Natural/Computer/Math Sci.. 738 45.9% 5.7
Technicians (All Types).... 3,650 38.4% 4.1
Lawyers & Judges..... 565 35.4% 5.2
Engineers, Archit., Survey. 1,567 31.6% 5.1
Service Occupations..... 17,536 30.7% 2.6
Marketing & Sales Occup.... 12,606 29.6% 3.4
Managerial & Support Occup. 10,583 29.7% 4.4
Construction Trades..... 4,006 17.6% 3.2
Teachers, Librar., Counsel. 4,949 15.6% 4.2
Admin.-Support Occup..... 19,851 11.4% 2.9
Transport. & Vehicle Operat 4,789 10.4% 2.2
Helpers & Laborers..... 4,273 5.8% 1.3
Precision Prod. Workers.... 3,066 4.4% 2.5
Machine Setters, Operators. 4,964 -3.9% 1.8
Assemblers & Hand-Workers.. 2,701 -4.2% 1.7
Agric., Forestry, Fishing.. 3,556 -4.6% 2.3
19.2%
Aver. Change, All Occupations
* Average of Language, Math & Reading

Source: G.T. Silvestri & J.M. Lukasiewicz, "A Look at Occupational Employment Trends to the Year 2000." Monthly Labor Review, Sept. 1987, Vol. 110 (No. 9), pp. 46-63 (Also see Manpower Tid-Bit 87-7, Office of Manpower Studies, Purdue University). And W.B. Johnston & A.E. Packer, Workforce 2000, Indianapolis, IN: Hudson Institute, June 1987.

Much has been written about the growing necessity for all to have mastered the basic academic skills. Looking at future employment projections, the conclusion must be drawn that the fastest growing occupations will require the highest literacy ratings. -- More evidence of the critical nature of a solid education foundation.

PURDUE UNIVERSITY - SCHOOL OF TECHNOLOGY
OFFICE OF MANPOWER STUDIES

DR. [illegible] BLACK,
DIRECTOR

DR. KEVIN D. SHELL,
RESEARCH ASSOCIATE

OCCUPATIONAL EMPLOYMENT TRENDS TO THE YEAR 2000 (SUMMARY)

High-skill job groups (which require the most education and training) are projected to grow faster than the averages of other groups. The proportion of employment is expected to decline the most in occupations which require the least amount of education.

The Nation's economy is projected to generate more than 21 million jobs between 1986 and 2000. The Bureau of Labor Statistics has developed three sets of occupational projections, with each set tied to high, moderate, or low economic and industry employment projections alternatives. ... However, the basic changes in the occupational structure of the economy from 1986 to 2000 among the three alternatives are similar. Thus, for ease of presentation, we focus on the moderate alternative....

There are a number of ways that one can assess projected changes in occupational employment. One is the expected change in the numbers of persons employed (largest job growth), another is the percentage change (fastest growing).

TABLE 1

LARGEST JOB OCCUPATIONS GROWTH, 1986-2000
WITH 1986 MEDIAN WEEKLY EARNINGS*

Numbers in Thousands Rank Order - No. Increase Occupation	Increased Employment 1986-2000 No.	%	1986 Median Weekly Earnings
Salespersons,retail	1,200	33.5	$215
Waiters & waitresses	752	44.2	171
Registered nurses	612	41.6	460
Janitors & cleaners, inc. maids & housekeeping cleaners	604	22.6	247
General mgrs & top executives	582	24.4	NA
Cashiers	575	26.5	181e
Truck drivers, light & heavy	525	23.8	350
General office clerks	462	19.6	283e
Food counter, fountain, & workers	449	29.9	152
Nursing aides, orderlies, attends	433	35.4	206
Secretaries	424	13.1	288
Guards	393	48.3	256
Accountants & auditors	376	29.8	478
Computer programmers	335	69.9	519
Food preparation workers	324	34.2	NA
Teachers, kindergarten & elem	299	19.6	397
Receptionists & info clerks	292	41.4	242
Computer systems analysts, EDP	251	75.6	631
Cooks, restaurant	240	46.2	196
Licensed practical nurses	238	37.7	300
Gardeners & groundskeepers, except farm	238	31.1	222
Maintenance repairers, gen.utility	232	22.3	NA
Stock clerks, sales floor	225	20.7	NA
First-line supervisors & managers	205	21.4	480
Dining room & cafeteria helpers	197	46.5	NA
Electrical/electronics engineers	192	47.8	704
Lawyers	191	36.3	767
Electric/Electronic Technicians	145	46.3	477

TABLE 2

FASTEST GROWING OCCUPATIONS, 1986-2000
WITH 1986 MEDIAN WEEKLY EARNINGS*

Numbers in Thousands Rank Order - % Increase Occupation	Increased Employment 1986-2000 No.	%	1986 Median Weekly Earnings
Paralegal personnel	94	103.7	$372e
Medical assistants	119	90.4	NA
Physical therapists	53	87.5	611e
Physical & corrective therapy assistants & aides	29	81.6	NA
Data proc.equip.repair	56	80.4	510
Home health aides	111	80.1	NA
Podiatrists	10	77.2	NA
Computer systems analysts	251	75.6	631
Medical records technicians	30	75.0	NA
Employmt interviewers, private or public employmt service	54	71.2	NA
Computer programmers	335	69.9	519
Radiologic technologists & technicians	75	64.7	393
Dental hygienists	54	62.6	NA
Dental assistants	98	57.0	243
Physician assistants	15	56.7	NA
Operations & syst.researchers	21	54.1	NA
Occupational therapists	15	52.2	NA
Peripheral EDP equip.oper	24	50.8	NA
Data entry keyers,composing	15	50.8	NA
Optometrists	10	49.2	NA
Electric/Electronic Engineers	192	47.8	704
Electric/Electron. Technician	145	46.3	477
Registered nurses	612	41.6	460

"NA" = not available. "e" = estimated.

As can be seen in Table 1, the largest numerical growth from 1986 to the year 2000 is projected to be 1.2 million more retail salespersons, followed by 752,000 waiters and waitresses and 612,000 Registered Nurses. The fastest growing (percentage change) occupations shown in Table 2, include paralegal personnel, medical assistants, physical therapists and aids, and data processing equipment repairmen. Note, however, the numbers of persons in these top fastest growing occupations are below the occupations listed in Table 1.

There are some occupations that appear on both tables ... these are occupations deserving special note and include Registered Nurses, Computer Programmers, Computer Systems Analysts (EDP) and Electrical and Electronics Engineers and Technicians.

* G.T. Silvestri & J.M. Lukasiewicz, "A Look at Occupational Employment Trends to the Year 2000." Monthly Labor Review, Sept. 1987, Vol. 110 (No. 9), pp. 46-63.

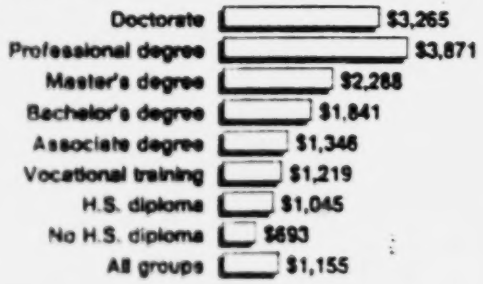
Projections show there will be a redistribution of workers between occupational groups as some grow larger and others become proportionately smaller. Highlights of these changes are shown in Table 3. Note in particular the impressive proportional gains projected for service workers, marketing and sales, managers, health related occupations and technicians: and note the losses projected for administrative support (including clerical), machine and agriculture workers, assemblers and laborers. In general, the occupational groups requiring the most education and training are expanding.

Table 3. Occupational employment distribution, 1986 and projected to 2000

Occupational Groups	1986	Projected, 2000 Moderate Trends	%
			Change
Total, all occupations	100.0%	100.0%	
Managerial & Management-related workers.	9.5	10.2	.7%
Engineers, architects, & surveyors	1.4	1.6	.2
Natural scientist & computer specialists	0.7	0.8	.1
Teachers, librarians, & counselors	4.4	4.3	- .1
Health-diagnosing & treating specialists	2.3	2.8	.5
Other professional specialists	3.3	3.5	.2
Technicians	3.3	3.8	.5
Marketing & salesworkers	11.3	12.3	1.0
Administrative support, inc. clerical	17.8	16.6	-1.2
Service workers	15.7	17.2	+1.5
Agriculture, forestry & fishing workers.	3.2	2.6	- .6
Blue-collar workers supervisors	1.6	1.5	- .1
Construction trades & extractive workers	3.6	3.5	- .1
Mechanics & repairers	4.2	4.0	- .2
Precision prod. & plant systems occup.	2.7	2.4	- .3
Machine setters & operators	4.4	3.6	- .8
Assemblers & other hand workers	2.4	1.9	- .5
Transportation & material moving workers	4.3	4.0	- .3
Helpers & laborers	3.8	3.4	- .4

INCOME VS. EDUCATION

Average monthly income of people with these educational attainments:



Educational attainment. Much has been written to indicate that the changing occupational structure of employment implies the need for a more highly educated work force. ... [T]he occupational clusters discussed previously were divided into three groups. Group I includes the clusters in which at least two-thirds of the workers in 1986 had 1 or more years of college. Group II includes the clusters in which the median years of school completed was greater than 12 and the proportion of those workers with less than a high school education was relatively low. Group III includes occupational clusters where the proportion of workers having less than a high school education was relatively high -- more than 30 percent. Given that workers in any occupational cluster have a broad range of educational background, ... workers are employed in each of the groups at each of the educational levels.

Table 4. Employment in broad occupational clusters by level of educational attainment, 1986 and projected to 2000, moderate alternative

(In percent)

Occupation	1986	2000
Total, all groups	100.0	100.0
Group I, total	25.1	27.3
Management and management-related occupations	9.5	10.2
Engineers, architects, and surveyors	1.4	1.5
Natural scientists and computer specialists	*	.8
Teachers, librarians, and counselors	4.4	4.3
Health diagnosing and treating	2.3	2.8
Other professional specialists	3.5	3.7
Technicians	3.3	4.0
Group II, total	40.8	40.0
Salesworkers	11.3	12.3
Administrative support, including clerical	17.8	16.7
Blue-collar worker supervisors	1.6	1.5
Construction trades and extractive workers	3.4	3.3
Mechanics and repairers	4.2	4.0
Precision production and plant systems workers	2.5	2.2
Group III, total	34.0	32.7
Service workers	15.7	17.2
Agriculture, forestry, and fishing workers	3.3	2.6
Machine setters and operators	4.5	3.6
Hand workers	2.4	1.9
Transportation and material moving workers	4.3	4.0
Helpers and laborers	3.8	3.4

The distribution of total employment in 1986 and projected 2000 employment for these three groups of educational attainment is shown in table 4. These data indicate that employment in the occupations requiring the most education, group I, is projected to increase as a proportion of total employment, while employment in the other two groups in which workers had less education will decline as a proportion of total employment. The proportion of total employment is expected to decline the most in group III, the group which requires the least amount of education. It should be noted that the service workers group -- the only occupational cluster in the educational attainment group III with median school years completed above 12 years [and a greater diversity of educational attainment across occupations] -- is increasing as a proportion of total employment. All other occupational clusters in this group are declining (some by very significant amounts). Conversely, in group I, all the clusters are increasing as a percent of total employment except for the teachers, librarians, and counselors occupation.

Employment Policies: Looking to the Year 2000

Major changes are anticipated in the workplace between now and the year 2000. While economists differ over the impact of these changes, all expect them to be significant. Some expect our economy and society to undergo an "economic and political shock" due to new technology, stiff international competition, changes in consumer tastes, and demographic shifts. These forces will result in pervasive mismatches between workplace needs and workforce capabilities....

THE DEMOGRAPHIC AND ECONOMIC SETTING

Over the next 10 to 15 years, the workforce will undergo a major change in composition. Most striking will be the growth of less well educated segments of the population that have typically been the least prepared for work. The number of minority youth will increase while the total number of youth of working age will decline. The numbers of high school dropouts and of teenage mothers will rise. At the same time, entry level jobs will increasingly require basic, analytical, and interpersonal skills. The labor market will need to accommodate still other changes in the workforce. Women will account for the majority of labor force growth. They will bring with them not only special needs for child care but continued pressure to move beyond traditional "women's work." The workforce also will be aging. Over 75 percent of the workforce in the year 2000 is already working today.

At the same time, the workplace is expected to change significantly. From 5 to 15 million manufacturing jobs will be restructured, and many service jobs will become obsolete. While it is expected that service jobs will replace those that are lost, the disruptions will be great and the need for training and retraining will be more significant than ever.

While these major changes are occurring, the federal government will seek to reduce overall spending. Of necessity, other sectors of society -- particularly state government and the business community -- will need to assume greater responsibility for developing and conducting education and training programs.

IMPLICATIONS AND CHALLENGE

Business, government, public and private training institutions, schools, and labor -- all must work in partnership to ensure that the necessary education and training are provided with a minimum of duplication. The public at large must see education, training and retraining as a lifelong process, vital to their working lives.

Business and government must look beyond education and training programs. The most rapidly growing, yet most vulnerable, of the nation's labor pool is concentrated where schools are inferior, work experience opportunities are poorest, and available full-time jobs are declining. Although business will need these workers, they will not be prepared to work and will often find jobs inaccessible to public transportation. Many potential workers will turn to welfare; some will turn to crime. These individuals will be a drain on society and will be lost as consumers of business' products and services. Public/private partnerships are needed to create jobs in these distressed areas, to provide labor market information, and to develop better transportation systems to existing jobs.

A new employment policy is needed that encompasses traditional public training programs as well as public education systems, training provided by both the private sector and labor, economic development programs, the employment service system and income maintenance systems, including unemployment insurance and welfare.

New forms of governance should be considered. Stronger public/private institutions at state, local and federal levels should be strengthened to address these problems.... Business will have to assume greater responsibility in training the workforce. Employers will need to be more involved in the development of community and state strategies, and they must help improve their state and local education systems and training institutions. In addition, employers have the responsibility for assuring that their own employees are trained and retrained to meet the needs of the changing workplace.

States should assume primary responsibility for addressing the needs of their citizens for job training, education, economic development, welfare and job placement. At the same time, local governments should have the flexibility to identify priorities and design and operate programs that meet their particular needs. The federal role should articulate national policies on employment and facilitate activities at the state and local levels to carry out these policies. Federal funds should supplement state and local resources to meet special needs. To some extent, these shifts in governance have already begun to occur.

We look to the year 2000, it is in our national interest that we move forward together, committed to making the best use of limited resources.

Source: National Alliance of Business, 1986

Perspective of the Problem

the National Alliance of Business

Quality Worker Gap

While technological and economic factors drive the changes in the demand side of our job market, the supply side has also been undergoing far-reaching demographic changes.

The Demand Side: Our Changing Needs

- *By 1990, more than 50% of all jobs will require education or technical training beyond high school.*
- *By the year 2000, an estimated 5 to 15 million manufacturing jobs will require different skills, while an equal number of service jobs will be obsolete.*
- *By the year 2000, the major contributor to new job opportunities will be small companies with less than 100 employees, yet small employers are the least able to provide remediation and training.*
- *Workers will change jobs five to six times during their normal work lives.*

The Supply Side: Our New Labor Force

- *82% of the new entrants to the labor force in the next twelve years will be women and minorities.*
- *1 million youth drop out of school each year.*
- *Dropout rates of many urban schools are 50% or more.*
- *More than 50% of all Hispanic youth will drop out of school.*
- *One out of every eight 17-year-olds is functionally illiterate.*
- *1 child in 5 lives in poverty. Children in poverty are one-third less likely to graduate from high school.*
- *More than one million teenage girls become pregnant each year.*
- *Nearly half of all black females are pregnant by age 20.*
- *More than 50% of all teenage mothers end up on welfare.*

The Cost of the Gap

- *Employers already spend an estimated $210 billion annually on formal and informal training.*
- *$41 billion is spent each year on welfare programs.*
- *Teenage pregnancies cost the U.S. over $16 billion each year in welfare costs alone.*
- *Remediation and lost productivity cost U.S. businesses $25 billion a year.*
- *Each year's dropouts cost America $240 billion in lost earnings and foregone taxes over their lifetimes.*
- *Every $1 spent on early prevention and intervention can save $4.75 in the costs of remedial education, welfare, and crime further down the road.*

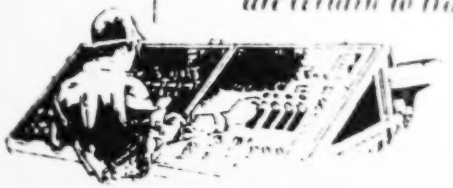
WORKFORCE 2000 PREDICTIONS

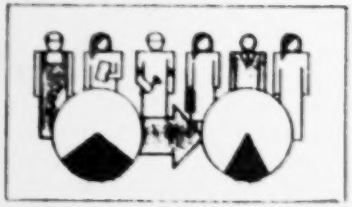
- The workforce will grow much more slowly, becoming older, more female, and more disadvantaged. Only 15 percent of new entrants will be white males, compared to 47 percent of the workforce today. In the 1970s, the workforce grew by 24 million, in the 1990s growth is predicted to be only 15.6 million.
- Despite a recent comeback, manufacturing will account for an even smaller share of the economy in 2000 than today. Service industries will create most of the new jobs and new wealth over the next 13 years.
- The new jobs in service industries will demand much higher skill levels than the jobs of today. Very few new jobs will be created for those who cannot read, follow direction, and use mathematics.
- Minorities will contribute a larger share of new entrants into the labor force. Non-whites will make up 29 percent of new entrants, twice their current share of the workforce.
- Immigrants will account for around 400,000 new entrants to the workforce each year, totaling 4 million new workers in the 1990s alone.
- Most new jobs will be with small businesses. Between 1978 and 1982, small firms (with less than 20 workers) represented only one-fifth of all employment but created two-fifths of all new jobs. This trend is expected to continue.
- Women will account for 47.5 percent of the workforce in 2000, up from 29.6 percent in 1950.
- Occupations will require more education, only 4 percent of the jobs in 2000 will be open to those with a high school diploma, compared to 18 percent today.
- Of major importance are effective programs to integrate Black and Hispanic workers fully into the economy.

Source: Workforce 2000: Work and Workers for the 21st Century, Career Opportunities News Sept. 1988, Vol.6, No.1.

CHANGE IN AMERICA

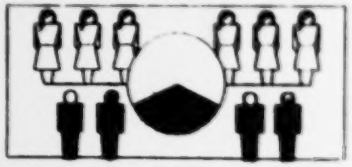
Between now and 2000, shifts in work and the workforce are certain to transform much of U.S. higher education





The proportion of the labor force from 16 to 24 years old will shrink from 30 per cent in 1985 to 16 per cent in 2000. Higher education, business, and the military will all be competing for this segment of the population for their students, employees, and recruits.

An estimated 29 per cent of the net growth in the work force during the next 15 years will be in minority groups. Yet high school dropout rates, which run nearly 30 per cent nationally, are 40 to 50 per cent in some inner city areas with large minority populations.



Women will account for about 63 per cent of the new entrants into the labor force between 1985 and 2000 and will increase their demand for child care.

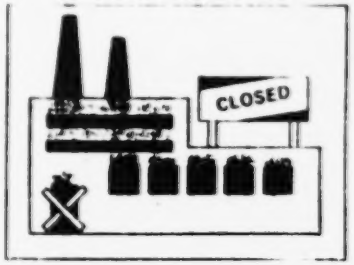
Between 2 and 3 per cent of the nation's labor force—which is projected to reach about 135 million by the year 2000—may need to be retrained each year.

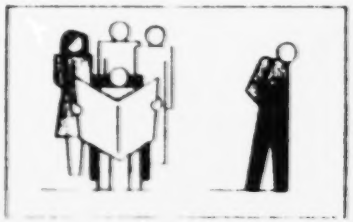
Between 200 and 300 large companies account for half of the formal training paid for by business and industry. Small businesses—which generate most of the new jobs—often cannot afford to pay for such training.

Although there will continue to be substantial shifts in the mix and types of jobs in coming years, the development of businesses making high-technology products—which many states are emphasizing in their economic development plans—will not necessarily be a panacea. Several studies have found that such high technology industries account for only 4 to 5 per cent of the new positions created each year, although more jobs are opening up in businesses that use computers and other high technology equipment.

In the next decade, about six million more jobs are projected in the most skilled occupations—executive, professional, and technical—compared to only about a million new jobs in the less skilled and laborer categories.

Between 1979 and 1984, an estimated 11.5 million people lost their jobs through plant closings, relocations, or technological innovations. An estimated 20 per cent of those people need to improve their basic skills in reading, writing, mathematics, and communication if they are to find jobs with good chances for advancement.





About 13 per cent of U.S. adults are illiterate in English. That means between 17 million and 21 million Americans will have difficulty reading a job notice, filling out an employment application, or understanding an instruction manual.

SOURCES: CENSUS BUREAU, DEPARTMENTS OF EDUCATION AND LABOR, OFFICE OF TECHNOLOGY ASSESSMENT, NATIONAL ALLIANCE OF BUSINESS. DRAWINGS BY WARREN ISENBEE